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Irrigation versus no irrigation in the treatment of chronic subdural hematoma: An updated systematic review and meta-analysis of 1581 patients

Aljabali, A., Serag, I., Diab, S., (...), Alkhaldeh, I.M., Abouzid, M.

2024 Neurosurgical Review 47(1),130

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Burr hole craniotomy is a common technique employed in the treatment of chronic subdural hematoma. However, its effectiveness and the occurrence of additional complications with various irrigation techniques utilized during the surgery remain unclear. The paper aims to compare the effectiveness and safety of burr hole craniotomy with and without irrigation in the treatment of chronic subdural hematoma. We conducted a systematic review by searching PubMed, Cochrane Library, Scopus, Ovid, and Web of Science for comparative studies that fit the eligibility criteria. All studies up to January 2023 were included, and the two groups were compared based on five primary outcomes using Review Manager Software. Data reported as odds ratio (OR) or risk ratio (RR) and 95% confidence interval (CI). A p-value of less than 0.05 was considered statistically significant. Our analysis included 12 studies with a total of 1581 patients. There was no significant difference between the two techniques in terms of recurrence rate (OR = 0.94; 95% CI [0.55, 1.06], p-value = 0.81) and mortality rate (RR = 1.05, 95% CI [0.46, 2.40], p-value = 0.91). Similarly, there was no significant difference in postoperative infection (RR = 1.15, 95% CI [0.16, 8.05], p-value = 0.89) or postoperative pneumocephalus (RR = 2.56, 95% CI [0.95, 6.89], p-value = 0.06). The burr hole drainage with irrigation technique was insignificantly associated with a higher risk of postoperative hemorrhagic complication (RR = 2.23, 95% CI [0.94, 5.29], p-value = 0.07); however, sensitivity analysis showed significant association based on the results of two studies (RR = 4.6, 95% CI [1.23, 17.25], p-value = 0.024). The two techniques showed comparable recurrence, mortality rate, postoperative infection, and postoperative pneumocephalus results. However, irrigation in burr hole craniotomy could possibly have a higher risk of postoperative hemorrhage compared with no irrigation, as observed during sensitivity analysis, which requires to be confirmed by other studies. Further research and randomized controlled trials are required to understand these observations better and their applicability in clinical practice.

<input type="checkbox"/> 2	Prostate cancer presentation and management in the Middle East <i>Open Access</i>	Sayan, M., Langoe, A., Aynaci, O., (...), Orio, P.F., Mula-Hussain, L.	2024	BMC Urology 24(1),35	0
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<p>Background: Although prostate cancer is a prevalent malignancy worldwide, its clinical presentation and management in the Middle East are not well-documented. This study aims to provide insights into the initial clinical presentation and management of prostate cancer in this region. Methods: A retrospective review was conducted on seven institutional databases from six Middle Eastern countries, including Türkiye, Lebanon, Iraq, Syria, Bahrain, and Jordan, to identify patients diagnosed with prostate cancer in 2021. Descriptive analysis was performed on the collected data to provide an overview of the demographic, clinical, and treatment variables. Results: A total of 1,136 patients were identified with a median age of 70 (range, 50–84). Most patients (78%) received their prostate cancer diagnosis after presenting with symptoms, as opposed to routine PSA screening. At the time of diagnosis, 35% of men had clinical T3 or T4 disease, 54% with Stage IV disease and 50% with Gleason score <math>\geq 8</math>. Regarding treatment, 20% of non-metastatic and 22% of metastatic patients received no treatment. Conclusion: Most men in this study sought prostate cancer evaluation due to symptoms and were subsequently diagnosed with advanced-stage disease, providing a foundation for future research aimed at understanding the underlying factors behind the observed trends and enabling informed interventions.</p>				
<input type="checkbox"/> 3 Genetic variation of CYP2C9 gene and its correlation with cardiovascular disease risk factors	Rasool, G.S., Al-Awadi, S.J., Hussien, A.A., Al-Attar, M.M.	2024	Molecular Biology Reports 51(1),105	0

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Background: The major enzyme that is responsible for Sulfonylureas (SUs) metabolism is hepatic cytochrome P-450 2C9 (CYP2C9). It is encoded by the polymorphic gene CYP2C9, which has many allelic variants, among those the CYP2C9\*2 and CYP2C9\*3 are the most common and clinically significant allelic variations. People with diabetes mellitus type 2 (T2DM) are more likely to develop cardiovascular disease (CVD), and their risk of dying from it is more than two times higher than that of people without the condition. The purpose of this study was to evaluate the association of genetic variations in the CYP2C9 gene with cardiovascular risk factors by investigating CYP2C9\*1, \*2, \*3, \*5, \*11, and \*13 allelic variants. Methods and results: A total of 226 participants were enrolled in the current case-control study. Allele-specific amplification- PCR (ASA-PCR) was used to determine the allele of different variations and the results were confirmed by sequencing. The findings of this study showed the presence of the CYP2C9\*2 allele in the T2DM group does not differ from its percentage in the control group. Also, CYP2C9\*3 allele frequencies identified by Hardy-Weinberg equilibrium (HWE) analysis law were not significant,  $p = 0.6593$  and  $0.5828$  in T2DM and control groups. There is no statistically significant difference between the control and diabetes groups involving the distribution of CYP2C9 alleles and CYP2C9\*5, \*11, and \*13 polymorphisms were absent in the Iraqi population. No carrier for the CYP2C9\*3 homozygous state was found in both groups. Conclusions: According to these results T2DM patients with the CYP2C9\*2 and \*3 variants have an increased risk of developing hypertension.

<input type="checkbox"/> 4	Synthesis and evaluation of novel ring-conjugated coumarins as biosafe broad-spectrum antimicrobial candidates	Zeki, N.M., Mustafa, Y.F.	2024	Journal of Molecular Structure 1309,138192	0
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This study presents, for the first time, the synthesis of innovative conjugates identified as a five-membered ring integrating three heteroatoms linked linearly to the coumarin framework. Seven conjugates, comprising combinations of 1,3,2-dioxathiole-2-oxide and coumarin derivatives, were made via a three-stage synthetic procedure originating from benzene 1,2,4-triole. Spectroscopic methodologies, encompassing 1H-NMR, 13C-NMR, and FTIR, were utilized to validate the structural frameworks of the synthesized conjugates. Their capacity in the biomedicine field to act as broad-spectrum antimicrobial agents was evaluated. Furthermore, the biosafety and in silico pharmacokinetic characteristics of the conjugates were also examined. Six pathogenic aerobic bacteriomers, three anaerobic bacteriomers, and two fungiomers were utilized to investigate the broad-spectrum antimicrobial activity of the conjugates. On the other hand, three non-pathogenic bacteriomers were employed to reveal the biosafety profiles of the synthesized conjugates. Finally, two web-based programs were utilized to unveil the pharmacokinetic profiles of the title conjugates. The authors outlined four principal outcomes drawn from the extracted results. The conjugation between 1,3,2-dioxathiole-2-oxide and coumarin derivatives demonstrates biosafety and broad-spectrum antimicrobial implications. Conjugate DOTC5 displayed potent antibacterial activity against the tested aerobic bacteriomers, showing a potency comparable to that of the reference drug. Conjugate DOTC1 demonstrated strong antifungal activity exceeding that of the standard used. The synthesized conjugates, particularly DOTC5, displayed interesting biosafety profiles against the non-pathogenic bacteriomers. It concluded that the conjugates DOTC5 and DOTC1 exhibit the potential to function as valuable scaffolds for developing novel medications with biosafe, broad-spectrum antimicrobial activities in the foreseeable future.

<input type="checkbox"/> 5	Exploring the Impact of Simulated Microgravity on Cellular DNA: A Comparative Analysis of Cancer and Normal Cell Lines <i>Open Access</i>	Altaie, S., Alrawi, A., Duan, X., Alnada, Q.	2024	Microgravity Science and Technology 36(3),28	0
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	<p>The examination of the impact of microgravity on biological systems has gained considerable attention owing to its potential implications for health and disease. Simulated microgravity serves as a valuable methodology for elucidating the intricate cellular responses to altered gravitational conditions. This study investigates the effects of simulated microgravity on cellular DNA, employing four distinct cell lines—breast, brain, and esophageal cancer cells, in conjunction with normal cells for comparative analysis. The experiment utilized the comet assay test to quantitatively assess DNA damage. The results revealed a discernible disparity in the response to simulated microgravity, notably with cancer cells exhibiting a significant increase in DNA damage compared to the relatively minimal effects observed in both control and normal cells. Furthermore, within the cancer cell lines, significant variations in the extent of DNA damage were evident, implying a cell type-dependent response to simulated microgravity. These findings illuminate the potential differential susceptibility of cancerous and normal cells to microgravity-induced DNA damage. Consequently, this research substantially contributes to our comprehension of microgravity-induced cellular responses and unveils promising avenues for targeted interventions in cancer therapy.</p>				
<input type="checkbox"/> 6	Natural linear coumarin-heterocyclic conjugates: A review of their roles in phytotherapy	Zeki, N.M., Mustafa, Y.F.	2024	Fitoterapia 175,105929	0

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Heterocycle conjugates provide a fresh investigative scope to find novel molecules with enhanced phytotherapeutic characteristics. Coumarin-based products are widely used in the synthesis of several compounds with biological and medicinal properties since they are naturally occurring heterocycles with a broad dispersion. The investigation of coumarin-based phytochemicals with annulated heterocyclic rings is a promising approach to discovering novel conjugates with significant phytotherapeutic attributes. Due to the applicable coumarin extraction processes, a range of linear coumarin-heterocyclic conjugates were isolated from different natural resources and exhibited remarkable therapeutic efficacy. This review highlights the phytotherapeutic potential and origins of various natural linear coumarin-heterocyclic conjugates. We searched several databases, including Science Direct, Web of Science, Springer, Google Scholar, and PubMed. After sieving, we ultimately identified and included 118 pertinent studies published between 2000 and the middle of 2023. This will inspire medicinal chemists with extremely insightful ideas for designing and synthesizing therapeutically active lead compounds in the future that are built on the pharmacophores of coumarin-heterocyclic conjugates and have significant therapeutic attributes.

<input type="checkbox"/> 7	Brain tumors recognition based on deep learning	Al-Jammas, M.H., Al-Sabawi, E.A., Yassin, A.M., Abdulrazzaq, A.H.	2024	e-Prime - Advances in Electrical Engineering, Electronics and Energy	8,100500
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Brain tumors are fatal diseases that require proper treatment, making accurate and timely diagnosis critical for successful treatment. Deep learning (DL) has emerged as a powerful tool for improving the accuracy of brain tumor recognition and underscores the importance of optimizing training parameters and dataset size. These findings demonstrate the feasibility of using DL for accurate and efficient brain tumor recognition, which has significant implications for improving patient outcomes. Accurate and timely diagnosis can greatly improve treatment outcomes and potentially save lives. This paper investigated the impact of DL on brain tumor recognition by utilizing a convolution neural network (CNN) algorithm and Magnetic Resonance Imaging (MRI) dataset of 4000 samples, each with a size of (224x224). The results show that increasing the dataset size led to better performance, with increasing accuracy and generalization of the model. Furthermore, increasing the number of epochs during training improves the accuracy; with 60 epochs as our choice for the DL model, we achieved 97.28% accuracy.

<input type="checkbox"/> 8	A novel linear and planar multiband fractal-shaped antenna arrays with low sidelobes	Mohammed, J.R.	2024	International Journal of Communication Systems 37(8),e5736	0
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Fractal antenna arrays are usually used to tune multiband frequencies. However, these types of iteratively constructed antennas are associated with undesirable high sidelobe levels and low directivities. In this paper, an optimization procedure based on the genetic algorithm is used to find the optimal weights of the array elements such that the corresponding array patterns have low sidelobe levels and good directivity. Moreover, the fractal nature in the proposed arrays is maintained regardless of the optimized weights. Thus, the proposed fractal-shaped array maintains its capability in performing multiband frequency operation. These good radiation features make the proposed fractal-shaped array more appropriate for the current and future wireless communication applications. Simulation results confirm the superiority of the presented linear and planar fractal-shaped array structures with compared to the conventional fractal cantor linear array and the standard Sierpinski carpet planar array. For the proposed fractal cantor linear array, the sidelobe level has been reduced to more than  $-20$  dB at different operating frequencies, and the directivity has been improved by more than 8 dB, while the modified Sierpinski carpet planar array has achieved  $-30$  dB depressions in the sidelobe level and 6 dB improvement in the directivity.

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<input type="checkbox"/>	9	6,7-Coumarin-heterocyclic hybrids: A comprehensive review of their natural sources, synthetic approaches, and bioactivity	Zeki, N.M., Mustafa, Y.F.	2024	Journal of Molecular Structure 1303,137601	3
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The hybridization of heterocycles presents a key opportunity to craft innovative multicyclic compounds with enhanced biological activity. Coumarins, being broadly prevalent natural heterocycles, are extensively utilized in the formulation of diverse biologically and pharmacologically active chemicals. The fusion of various hetero rings with the coumarin ring represents a captivating approach to creating novel hybrid molecules endowed with notable biological activities. In the endeavor of developing heterocyclic-fused coumarins, a diverse array of 6,7-heterocycle-coumarin hybrids has been introduced, showcasing remarkable biological efficacy. The impact of heterocyclic annulation at the 6,7-positions of the coumarin ring on the biological activity of the resultant structures has been examined. This review centers on the natural origins, synthetic methodologies, structural activity relationship investigation, and biological potentials of 6,7-heterocycle-coumarin hybrids. We conducted searches across several databases, including Web of Science, Google Scholar, PubMed, and Scopus. After sieving, we ultimately identified and included 161 pertinent studies published between 1995 and the middle of 2023. This will offer valuable insight to medicinal chemists for the future design and synthesis of biologically active lead compounds based on heterocycle-fused coumarin scaffolds with substantial therapeutic effects.

<input type="checkbox"/>	10	Non-Terrestrial UAV Clients for Beyond 5G Networks: A Comprehensive Survey <i>Open Access</i>	Qazzaz, M.M.H., Zaidi, S.A.R., McLernon, D.C., (...), Salama, A., Aldalahmeh, S.A.	2024	Ad Hoc Networks 157,103440	0
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The rapid proliferation of consumer UAVs, or drones, is reshaping the wireless communication landscape. These agile, autonomous devices find new life as UE in cellular networks. This paper explores their integration, emphasizing the myriad applications, standardization efforts, challenges, and research community solutions. Key areas of investigation include the complexities of 3D deployment, channel modelling, and energy efficiency. Moreover, we highlight the open questions and research opportunities these flying UEs present. The evolving landscape of UAV integration into cellular networks promises transformative enhancements for next-generation communications, addressing challenges while fostering innovation across industries. The paper encapsulates the essential aspects of UAV integration within the cellular ecosystem, offering a concise yet comprehensive overview of this dynamic field, where UAVs as UEs redefine wireless communication with promise and complexity.

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Background: This study aimed to assess the role of community pharmacists and their perception toward antimicrobial stewardship, in addition to identifying factors influencing their perception and practices in community pharmacy. Methods: A cross-sectional study was carried out among community pharmacists regarding antimicrobial stewardship. Convenience sampling was used to obtain the required sample from a community pharmacy in Baghdad. In total, 381 participants have completed the survey. Results: The majority of the participants (85.6%) strongly agreed/agreed that “antimicrobial stewardship programs reduce the problems of antibiotic resistance”; and 85.5% of them strongly agreed/agreed that community pharmacists required adequate training on antibiotics use. In addition, high percent of community pharmacists (88.4%) strongly agreed/agreed that pharmacists have a responsibility to take a prominent role in antimicrobial stewardship programs and infection-control programs in the health system. The total score of perception was significantly influenced by older age groups, postgraduate degrees, and experience of 6–10 years ( $p < 0.001$ ). This study also showed that 65.4% of pharmacists always/often advise patients to continue the full course of antimicrobials, and 64.9% of them reported always/often considering clinical and safety parameters before dispensing antibiotics. The role of pharmacists was significantly influenced by the younger age group, females, higher degree in pharmacy, experience of 3–5 years, and medical complex pharmacy ( $p < 0.001$ ). Conclusion: Community pharmacists have a good perception toward antimicrobial stewardship programs, but their role is still limited. More efforts are needed to design better strategies for antimicrobial stewardship in community pharmacy.

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| <input type="checkbox"/> | 12 | Coumarin hybrids for targeted therapies: A promising approach for potential drug candidates | Zeki, N.M.,<br>Mustafa, Y.F. | 2024 | Phytochemistry Letters<br>60, pp. 117-133 | 3 |
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Phyto-coumarins demonstrate diverse biological actions, encompassing antiradical, anti-inflammatory, oncolytic, monoamine oxidase B (MAOB) suppression, and antibacterial properties. Researchers commonly employ these molecules to evolve innovative, fully or partially laboratory-made, medicinal products stemming from coumarin. Many of these medicines are crossbreed chemical compounds that have been strategically constructed using the molecular hybridization principle, resulting in diverse pharmacological actions. The mixtures of compounds possess multifunctional properties, rendering them promising candidates for therapeutic development in treating intricate ailments such as malignant growth, Alzheimer's disease, dysmetabolic syndrome, acquired immune deficiency syndrome (AIDS), plasmodium infection, and cardiovascular conditions. This review compiles research studies about the advancement of several coumarin hybrids, classifies them according to their therapeutic applications, and suggests potential structure-activity correlations. We conducted searches across several databases, including Web of Science, Google Scholar, PubMed, and Scopus. After sieving, we ultimately identified and included 45 pertinent studies published between 2004 and the middle of 2023. The authors aimed to support medicinal chemists in developing and producing highly effective, targeted coumarin hybrid compounds to treat various human illnesses.

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<input type="checkbox"/>	13	Alpha-FedAvg: Safeguarding Privacy and Enhancing Forensic Analysis in Federated Learning on Edge Devices <i>Open Access</i>	Salih, K.M.M., Ibraheem, N.B.	2024	International Journal of Computing and Digital Systems 15(1), pp. 1391-1403	0
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In this paper, a novel federated learning algorithm for decentralized settings on edge devices—Alpha-FedAvg—is introduced. Using an adaptive learning rate approach based on Lipschitz and Smoothness parameters, Alpha-FedAvg dynamically modifies the learning rate for every node. Through federated averaging, the approach accomplishes model aggregation, exhibiting enhanced convergence and performance. An extensive test configuration includes using Kali Linux to simulate network assaults, an ESP32 microcontroller connected to a laptop equipped with a sound sensor, and Wireshark and Scapy for traffic analysis. The Alpha-FedAvg algorithm offers a privacy-preserving solution by effectively identifying and thwarting network attacks without gaining access to user data. The algorithm's performance is demonstrated in a comprehensive report generated. Evaluation against IID and non-IID datasets, such as Edge-IIoTset, and comparison with other models validate Alpha-FedAvg's efficacy in federated learning applications.

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<input type="checkbox"/>	14	Hydrogen solar pump in nocturnal irrigation: A sustainable solution for arid environments	Ibrahim, M.H., Ibrahim, M.A., Khather, S.I.	2024	Energy Conversion and Management 304,118219	0
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This study focuses on the challenges of desertification and non-arable lands in off-grid remote areas with hot and arid climates. Despite the availability of groundwater, these areas require access to electricity at night to operate the water pumps to spray the crops due to high evaporation rates during the daylight. The absence of grid electricity necessitates the utilize of diesel generators to power irrigation systems, representing a significant contributor to climate change and the depletion of fossil fuel reserves. Addressing nocturnal electrification using sustainable solutions is crucial for reclaiming such areas and eliminating the environmental impacts of diesel generators. The study introduces a novel closed-loop Discrete Regenerative Fuel Cell (DRFC) solar-hydrogen storage irrigation system designed explicitly for nocturnal utilization in water-scarce regions to rectify this concern. The study then assesses its performance compared to a conventional diesel generator system when supplying a one kW water pump for a sample land area of 10 dunams. Using the HOMER Pro simulation tool, the simulation results strongly support the assertion that the PV-hydrogen irrigation system intended in this study exhibits superior techno-economic performance compared to the conventional diesel-irrigation system. A comprehensive analysis of the net present cost (NPC) and cost of energy (COE) between the two systems reveals that the proposed system achieves values of \$0.529 and \$5365, respectively. In contrast, the diesel system records values of \$0.572 and \$5796, respectively. These findings indicate a notable 9 % reduction in overall costs associated with implementing the proposed system. Additionally, the fuel cell showed stable performance across varying months which implies a consistent and reliable contribution to the overall electrical power generation within the hybrid system, regardless of seasonal fluctuations in solar power and temperatures. Furthermore, in terms of environmental impact, our findings highlight a significant advantage of the proposed system over the diesel generator. Specifically, the proposed system produces zero carbon emissions, while emissions from the diesel generator were notably higher at 993 kg/year. It is essential to emphasize that the integration of fuel cells into the proposed system holds the potential to offer a clean source of drinking water for farmers and workers in the area. The implications of these findings can help the research community develop and facilitate the reclamation process of agricultural lands worldwide that face similar challenges to the study region. This could lead to subsequent global environmental and

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<input type="checkbox"/> 15	The conditional Lyapunov exponents and synchronisation of rotating turbulent flows <i>Open Access</i>	Li, J., Tian, M., Li, Y., Si, W., Mohammed, H.K.	2024	Journal of Fluid Mechanics 983,A1	0

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The synchronisation between rotating turbulent flows in periodic boxes is investigated numerically. The flows are coupled via a master–slave coupling, taking the Fourier modes with wavenumber below a given value  $k_m$  as the master modes. It is found that synchronisation happens when  $k_m$  exceeds a threshold value  $k_c$ , and  $k_c$  depends strongly on the forcing scheme. In rotating Kolmogorov flows,  $k_c \eta$  does not change with rotation in the range of rotation rates considered,  $\eta$  being the Kolmogorov length scale. Even though the energy spectrum has a steeper slope, the value of  $k_c \eta$  is the same as that found in isotropic turbulence. In flows driven by a forcing term maintaining constant energy injection rate, synchronisation becomes easier when rotation is stronger. Here,  $k_c \eta$  decreases with rotation, and it is reduced significantly for strong rotations when the slope of the energy spectrum approaches  $-3$ . It is shown that the conditional Lyapunov exponent for a given  $k_m$  is reduced by rotation in the flows driven by the second type of forcing, but it increases mildly with rotation for the Kolmogorov flows. The local conditional Lyapunov exponents fluctuate more strongly as rotation is increased, although synchronisation occurs as long as the average conditional Lyapunov exponents are negative. We also look for the relationship between  $k_c$  and the energy spectra of the Lyapunov vectors. We find that the spectra always seem to peak at approximately  $k_c$ , and synchronisation fails when the energy spectra of the conditional Lyapunov vectors have a local maximum in the slaved modes.

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<input type="checkbox"/> 16	Stereotactic radiotherapy: An educational narrative review <i>Open Access</i>	Khan, A.M.H., Hashmi, S.F.A., Li, B., (...), Rassou, S.C., Mula-Hussain, L.	2024	Precision Radiation Oncology 8(1), pp. 47-58	0

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Stereotactic radiotherapy is a term collectively used to describe the radiation treatment techniques that allow for the delivery of highly precise ionizing radiation. It is usually a high dose per session in single or few fractions. This treatment approach has been in medical use for over six decades and has primarily evolved in the last two decades. Many patients benefit from this unique non-conventional radiotherapy approach. Its indications include various malignant, benign and functional problems in cranial and body sites. This technique is not widespread in developing countries compared to developed countries. This work is an educational narrative review for learners in radiation oncology. We aim to share the knowledge of this practice to improve precision radiation oncology globally. This review summarizes the basics of stereotactic radiotherapy, the technical prerequisites, the clinical considerations, the practical recommendations and the learning points from each site-specific region.

<input type="checkbox"/> 17	A Modified Fractal Hexagonal Slot Antenna With a Defected Ground Structure for RF Energy Harvesting Applications	Hasan, M.M., Sabaawi, A.M.A.	2024	International Journal of Microwave and Optical Technology 19(2), pp. 169-180	0
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A novel multiband patch antenna with a modified hexagonal structure is introduced in this paper to target the most required frequencies used for radio frequency energy harvesting applications, including WLAN-2.4G, WLAN-5G, WLAN-6G (Wireless Local Area Network), Mobile LTE (Long Term Evolution), and WIMAX (Worldwide Interoperability for Microwave Access). A novel fractal shape is designed and combined with a conventional hexagonal geometrical shape in order to implement the front patch of the antenna. The proposed antenna is simulated with CST Studio Suite software and fabricated on FR-4 substrate. Different antenna stages with parametric study and optimization were implemented to get the best performance from the proposed antenna. The proposed multiband antenna (Antenna-1) supports four resonate frequencies (2.4045 GHz, 3.568 GHz, 4.6405 GHz, 5.869 GHz) and has a high gain of (3.2 dBi) at the frequency of 2.4045 GHz. The proposed antenna covers all of the WLAN-2.4G (IEEE 802.11) frequency band and achieved a maximum bandwidth of (0.5101 GHz) at a frequency of 5.869 GHz, making it a suitable antenna for radio frequency energy harvesting applications. The measured results have shown good agreement with the simulation results. Furthermore, an evaluation of this proposed work in comparison to other published works highlighted the advantages in terms of antenna thickness, size, gain, and the number of supported operating frequencies. Also, the comparison showed that the FR-4 substrate used to implement this proposed work is much cheaper than other substrate types used to implement other published works.

<input type="checkbox"/>	18	Multiband Handset Antennas with Elliptical Slot for Sub-6 GHz 5G Smartphones	Sabaawi, A.M.A., Sultan, Q.H.	2024	International Journal of Microwave and Optical Technology 19(2), pp. 1-12	0
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In this paper, patch antennas with elliptical slot and multiband features are introduced for sub-6 GHz 5G smartphones handsets. The aim of this work is to investigate the role that elliptical slots play in controlling the performance of patch antennas at sub-6 GHz frequency regime. Vertical and horizontal elliptical slots were used to study the effect of the slot direction on the antenna performance. Likewise, half vertical and half horizontal elliptical slots were used to observe the effect of the slot shape on the impedance matching and resonant frequency. The proposed antennas are simulated on FR-4 substrate with using CST Studio Suite software. Extensive simulations were carried out and two specific antennas were studied in details as case study. The first antenna (Antenna 1) incorporates a vertical elliptical slot and resonates at two frequencies (3.24 GHz and 4.95 GHz). The second antenna (Antenna 2) contains a horizontal slot and exhibits quad band performance with four resonate frequencies (0.69 GHz, 3.18 GHz, 4.65 GHz and 6.42 GHz). Both of the selected antennas were fabricated on FR-4 substrate and the measured results have shown good agreement with simulation results.

- | Document title  | Authors                       | Year | Source  | Cited by |
|---|-------------------------------|------|---|----------|
| <input type="checkbox"/> 19 Real-time Arabic Video Captioning Using CNN and Transformer Networks Based on Parallel Implementation<br><i>Open Access</i> | Yousif, A.J., Al-Jammas, M.H. | 2024 | Diyala Journal of Engineering Sciences 17(1), pp. 84-93 | 0        |

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Video captioning techniques have practical applications in fields like video surveillance and robotic vision, particularly in real-time scenarios. However, most of the current approaches still exhibit certain limitations when applied to live video, and research has predominantly focused on English language captioning. In this paper, a novel approach for live real-time Arabic video captioning using deep neural networks with a parallel architecture implementation is introduced. The proposed model primarily relied on the encoder-decoder architecture trained end-to-end on Arabic text. Video Swin Transformer and deep convolutional network are employed for video understanding, while the standard Transformer architecture is utilized for both video feature encoding and caption decoding. Results from experiments conducted on the translated MSVD and MSR-VTT datasets demonstrate that utilizing an end-to-end Arabic model yielded better performance than methods involving the translation of generated English captions to Arabic. Our approach demonstrates notable advancements over compared methods, yielding a CIDEr score of 78.3 and 36.3 for the MSVD and MSR-VTT datasets, respectively. In the context of inference speed, our model achieved a latency of approximately 95 ms using an RTX 3090 GPU for a temporal video segment with 16 frames captured online from a camera device.

<input type="checkbox"/>	20	Association of Overweight and Obesity with Monosymptomatic Nocturnal Enuresis in 5-15 Years Old Children <i>Open Access</i>	Shareef, A.A., Alsuwayfee, K.I., Almallakhdeer, A.S.	2024	International Journal of Biomedicine 14(1), pp. 30-35	0
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Background: Monosymptomatic nocturnal enuresis (MNE) has increasingly been reported as a challenging issue for families and children due to its impact on the psychological aspects of children and on reducing their concentration at school the next day. Obesity might serve as a risk factor for voiding dysfunction in children. Our study aimed to evaluate the relationship between excess body mass index (BMI) in children and MNE. Methods and Results: This case-control study included 60 children diagnosed with MNE (the main group [MG]) and 60 children without MNE (the control group [CG]) aged 5-15 years. Proper matching between the two groups concerning age and sex was adopted. Age, weight, family history, and complete medical history were recorded for each participant. In the MG, 18(30%) children had excess BMI, and 42(70%) had normal BMI. In contrast, 9(15%) children in the CG had excess BMI, and 51(85%) children had normal BMI, indicating a statistically significant association between increased BMI and MNE ( $P=0.049$ ). The frequency of positive family history was significantly higher among the MG than the CG ( $P=0.0001$ ). The findings of this study showed no significant relationship between gender and a family history of enuresis with excess BMI in children with MNE ( $P=0.679$  and  $P=0.234$ , respectively). Conclusion: Obesity and overweight in children have an influence on the development of MNE. (International Journal of Biomedicine. 2024;14(1):30-35.).

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| <input type="checkbox"/> | 21 | Energy efficiency optimisation in massive multiple-input, multiple-output network for 5G applications using new quantum genetic algorithm<br><i>Open Access</i> | Sabaawi, A.M.A., Almasaoodi, M.R., El Gaily, S., Imre, S. | 2024 | IET Networks 13(2), pp. 165-177 | 0 |
|--------------------------|----|---|---|------|---------------------------------|---|

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Devising efficient optimisation methods has been a subject of great research attention since current evolving trends in communication networks, machine learning, and other cutting-edge systems that need a fast and accurate optimised computational model. Classical computers became incapable of handling new optimisation problems posed by newly emerging trends. Quantum optimisation algorithms appear as alternative solutions. The existing bottleneck that restricts the use of the newly developed quantum strategies is the limited qubit size of the available quantum computers (the size of the most recent universal quantum computer is 433 qubits). A new quantum genetic algorithm (QGA) is proposed that handles the presented problem. A quantum extreme value searching algorithm and quantum blind computing framework are utilised to extend the search capabilities of the GA. The quantum genetic strategy is exploited to maximise energy efficiency at full spectral efficiency of massive multiple-input, multiple-output (M-MIMO) technology as a toy example for pointing out the efficiency of the presented quantum strategy. The authors run extensive simulations and prove how the presented quantum method outperforms the existing classical genetic algorithm.

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<input type="checkbox"/>	22	Monitoring Electricity Distribution Transformers in Mosul City based on IoT LoRaWAN Network	Almonem, A.A., Al Janaby, A.O.	2024	AIP Conference Proceedings 3009(1),030001	0
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This paper offered a framework on the Internet of Things (IoT) to observe and control the largest number of distribution electric transformers in Mosul city. This method has the advantage of providing continuous monitoring of electrical distribution transformers as load current, voltage, winding temperatures, oil level, and oil temperatures to provide timely alerts to correct if there is a malfunction to convert conventional monitoring to smart monitoring. As a result, the life of distribution transformers is extended, lowering the cost of maintenance. This paper suggests a design that utilized LoRa-WAN based on the IoT by using LoRa modules to send this data across a LoRa gateway that communicate to server via Cloud platform on the internet. If any of the distribution transformer's end devices (EDs) parameters exceeds the predetermined value, the EDs will send alerts to LoRa-Wan. After loRa will receive these alerts, the network then will implement the necessary action. This paper provides an implementation of simulation software (omnet++) program to assess the LoRa performance as implemented through the framework of FLoRa to simulate transformers for electrical distribution. The results of the study demonstrated the ability of modeling and simulating different environments by assigning suitable parameters value of LoRa for the carrier frequency, coding rate, spreading factor, bandwidth, and power transmit. Network performance has been improved through minimize the energy consumption for EDs and increase of the packets delivery ratio by reducing the size of the network's area, incrementing the number of LoRa gateways, and reducing the distance between the EDs and the gateway.

<input type="checkbox"/>	23	Novel biosensor for highly sensitive detection of serum albumin in artificial human urine using CuNPs@AG <i>Open Access</i>	Sami, A.S., Barani, S.S.I., Rashid, R.F., (...), Biso, F.H., Issa, M.M.	2024	Sensing and Bio- Sensing Research 43,100633	0
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Detecting early signs of disease can significantly mitigate the risk of severe consequences. Chronic kidney disease (CKD), stemming from various underlying conditions like diabetes mellitus, high blood pressure, obesity, and heart disease, manifests as an impairment in the kidneys' ability to efficiently filter blood. Consequently, a small amount of the protein albumin might be excreted into the urine. In this study, we have developed a novel biosensor utilizing copper nanoparticles to identify even trace levels of albumin in urine samples. Unlike conventional immunoassay methods, our biosensor doesn't rely on antibodies for its creation. By utilizing gum tree as a stabilizing agent, we've successfully synthesized the copper nanosensor, achieving distinct optical properties and prolonged stability. This method allowed for the precise quantification of bovine serum albumin (BSA) under optimized conditions. To perform quantitative analysis, we established a calibration curve by plotting the variations in absorbance at 580 nm between the sample and the blank. This assay effectively detected albumin within the concentration range of 25 to 250 mg/L (with an R2 value of 0.98), and it exhibited a low limit of detection (LOD) at 6.5 mg/L. Notably, CuNPs demonstrated excellent specificity towards albumin. Moreover, we successfully applied this developed method for the rapid screening of albumin in synthetic and authentic urine samples, achieving recovery percentages ranging from 90% to 104% using UV-visible spectrometry. Overall, this colorimetric method holds significant promise for on-site albumin detection, offering high accuracy, exceptional selectivity, and minimal reagent consumption.

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<input type="checkbox"/>	24	Analyzing the Histopathological Profiles of Thyroid Disorders in the Urban Setting of Mosul <i>Open Access</i>	Qassim, R.A., Ibrahim, R.H.	2024	International Journal of Advancement in Life Sciences Research 7(1), pp. 45-50	0
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Introduction: This study seeks to investigate the demographic and histopathological profiles of thyroid disorders in Mosul, Iraq, covering the period from January 2021 to December 2022. The primary goal is to understand the prevalence, gender distribution, and age patterns of various thyroid disorders, providing a comprehensive overview of the epidemiological landscape in the region. Methods: A retrospective analysis was conducted on 450 cases obtained from the Pathology Department of Al Khanssa Teaching Hospital. The study focused on demographic parameters, histopathological types, and age distribution across congenital, autoimmune/inflammatory, goiter, and neoplastic categories. Female-to-male ratios were calculated, and specific age groups were scrutinized for concentrations of thyroid disorders. Results: The study revealed a significant female predominance, with a total female-to-male ratio of 9.7:1. Distinct age patterns were observed, showcasing concentrations of autoimmune cases in the 21-30 age group and a peak in goiter cases in the 41-50 age group. Simple colloid goiter emerged as the most prevalent histological type at 42.2%. Comparisons with regional and international studies confirmed the consistency of the findings, emphasizing the influence of geographical location and socio-cultural factors on male-to-female ratios. Conclusion: This study contributes crucial insights into the epidemiological landscape of thyroid diseases in Mosul, allowing for informed clinical management and targeted public health interventions. The identified patterns and prevalence rates offer a foundation for further research and the development of region-specific strategies to address the challenges posed by thyroid disorders. The study underscores the necessity of tailoring interventions to the unique characteristics of the local population, emphasizing the importance of region-specific considerations in understanding and managing thyroid disorders.

<input type="checkbox"/>	25	Transcription Silencing and CpGs Hypermethylation as Therapeutic Gene Editing in Clinical Colorectal Adenocarcinoma Repression <i>Open Access</i>	Al-Jumaili, M.M.O.	2024	The Korean journal of gastroenterology = Taehan Sohwagi Hakhoe chi 83(1), pp. 6-16	0
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Hide abstract ^ [Locate full text](#)

Background/Aims: Colorectal cancer is the most common cancer in oncopathology, with an increasing incidence among the elderly during the last decade. Various genetic and environmental factors play important roles in the emergence of colorectal adenocarcinoma. Non-coding RNAs, approximately 20-22 nucleotides, are transcribed irregularly in many cancer cells and play a critical role in many metabolic pathways in clinical cancer cases. DNA methylation is a critical epigenetic alteration that controls gene expression. In the current study, transcriptional silencing and CpG hypermethylation were developed as a therapeutic gene editing strategy for the clinical repression of colorectal adenocarcinoma. Methods: A human colorectal adenocarcinoma cell line (Caco2) and a normal lung fibroblast cell line (Wi38) were utilized as the paradigms in this research to examine the effect of mir155 molecule transfection and CpGs-island (CGI) methylation. Cell counting was achieved using six-well and 24-well plates before transfection using a hemocytometer. The two cell lines were transfected with the mir155 agomir and antagomir molecules. The transfection efficiency, cell viability, cell IC50, and target gene expression were measured, and CGIs-methylation was achieved by bisulfate conversion. Results: The outcomes revealed the downregulation of oncogenes (AKT1 and VCAM1 genes as cancer-associated genes) and the upregulation of tumor suppressor genes (TSGs, Tp53 and KEAP1). In addition, CpG-islands methylation showed significant blocking of the oncogene promoter regions, and the switch on of TSG promoter regions was continuous. Conclusions: miRNA-CGI-methylation led to the regression of Caco2 cell proliferation, suggesting the potential use of RNA silencing and DNA methylation in targeted gene therapy for colorectal cancer.

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<input type="checkbox"/>	26	Hot-spot aware multicost-based energy-efficient routing protocol for WBANs	Raed, S., Alabady, S.A.	2024	International Journal of Communication Systems	0
Article in Press						

Wireless body area networks (WBANs) are becoming widely considered in remote healthcare monitoring applications. However, WBAN nodes have limited resources; therefore, effective and reliable routing protocols are pivotal research challenges. Furthermore, balancing the traffic load among sensor nodes is also highly required to increase network stability. In recent years, many interesting routing solutions have been proposed for WBANs; however, the significant feature in terms of stability and energy in these solutions has not been sufficiently addressed. Therefore, in this context, the Hot-Spot Aware Multicost-based Energy-efficient Routing (H-SAMER) protocol is proposed in this paper. The suggested protocol used multi-effective cost function for next-hop node selection based on the data type, where the patient's data are categorized into three classes: normal data, on-demand data, and emergency data. Furthermore, the H-SAMER protocol adds awareness to the transmission of control packets by adding the cost value to the RREQ packets. Thus, the simulation scenario shows that the H-SAMER saves energy 8.57%, 88%, 98%, 97%, and 100% greater than E-HARP, EH-RCP, CO-LAEEBA, EECBSR, and ELR-W, respectively. Moreover, the first node death of the proposed H-SAMER is delayed to round number 7500, which proves H-SAMER to be a stable and reliable effective solution for WBANs.

<input type="checkbox"/>	27	Multiband SINC-slotted Patch Antenna for 5G Applications <i>Open Access</i>	Sultan, Q.H., Sabaawi, A.M.A.	2024	Periodica polytechnica Electrical engineering and computer science 68(2), pp. 193-201	0
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In this work, we presented the design, analysis and optimization of the multiband slotted antennas based on SINC function for 5G applications. The proposed antennas are designed and modelled by CST Studio Suite software. A parametric study is performed to determine sinc function parameters that control the performance of the proposed antenna. The parametric study is implemented by varying the amplitude of the sinc function, the frequency, the location of the slot along Y-axis, the slot width and the slot window (number of cycles). The simulated results showed that the designed slotted antennas in this paper exhibits multiband operation and they offer the feasibility of controlling and adjusting the resonant frequency by changing the sinc function parameters. The proposed antennas have various resonant frequencies at around 1.5 GHz, 2.65 GHz, 5 GHz and 5.8 GHz covering the 5G sub-6 GHz band. Extensive simulation process were carried out to determine the optimum antenna performance and three antennas were selected based on the reflection characteristics and number of operation frequency bands. Finally, the three selected antennas were manufactured and their performance were measured in the lab for validation. Experimental results showed that an excellent agreement between the measured and simulated results was achieved.

<input type="checkbox"/>	28	A Novel Invisible Image Watermarking Based On The Relation Between The Selected DCT Coefficients	Ahmed, S.K., Al-Faydi, S.N.M.	2024	2024 2nd International Conference on Software Engineering and Information Technology, ICoSEIT 2024 pp. 108-113	0
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Digital image watermarking main goals are the high robustness and imperceptibility of the watermark with minimum degradation in the watermarked image. A novel watermarking method is introduced in this work that relies on the Discrete Cosine Transform (DCT). The transformed blocks of the host image are divided into two groups, the first contains the blocks that have the DCT coefficient (2,3) greater than (3,2) and the second group contains the blocks where the DCT coefficients (2,3) less than or equal to (3,2) sorted in descending order. In embedding the binary watermark image, the pixels with value one are embedded in the first group while the zero pixels are embedded in the second group. If one of the groups is empty the embedding is performed on the other group, and the values of the coefficients (2,3) and (3,2) are exchanged. The difference between the two selected DCT coefficients mustn't be small to be able to resist attacks, so small differences are manipulated. The proposed technique achieved high imperceptibility with an average PSNR equal to 49 for 64\*64 watermark size with 512\*512 cover image size and infinity PSNR for the watermark of size 32\*32. The obtained results confirmed the high imperceptibility and robustness of the suggested technique compared with others.

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<input type="checkbox"/>	29	Value of maternal tactile method in detecting fever among under five years children during the COVID-19 era	Shareef, A.A., Alasaf, N.H., Al-Fathy, M.Y.A.	2024	Journal of Pediatric and Neonatal Individualized Medicine 13(1), pp. 1-8	0
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Objectives: The ability of mothers to accurately predict the presence of fever in their children using the tactile method is still controversial. This study evaluated the accuracy of Iraqi mothers' tactile fever detection in children under 5 during COVID-19 pandemic. Materials and methods: Interviews were conducted with 200 mothers whose children were under the age of 5 years and who assumed they had fever. Each mother was then asked to touch her child's body for fever evaluation, while an investigator observed them, recorded their responses, and documented the places of palpation. Thereafter, the investigator determined the child's temperature using a non-contact temple thermometer (NCTT). Statistical analysis was conducted to compare the maternal tactile approach to NCTT and single site to multiple site palpation in terms of sensitivity, specificity, and predictive values. Results: The prevalence of fever in the study sample was 72%, as 144 of the 200 children involved were confirmed to have fever by NCTT. The sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of the maternal tactile method were 96.5%, 62.5%, 86.9%, and 87.5%, respectively. Multiple child body sites were palpated by 42.5% of mothers, whereas 57.5% palpated a single site, with the forehead being the most common palpated site (31%). Multiple site palpation had a significantly lower incorrect temperature assessment rate than single site palpation (3.5% vs. 27%,  $p = 0.00001$ ). Additionally, the accuracy increased significantly when the mother palpated multiple sites (96.5% vs. 73%). Conclusion: The findings of this study suggest that mothers' use of tactile assessment is an effective screening tool when assessing their children's fever; however, mothers' fears can reduce the accuracy of this method, whereas instructing the mother to palpate multiple body parts can increase its reliability.

<input type="checkbox"/>	30	Novel heterocyclic coumarin annulates: synthesis and figuring their roles in biomedicine, bench-to-bedside investigation	Zeki, N.M., Mustafa, Y.F.	2024	Chemical Papers Article in Press	0
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This study revealed the first synthesis of seven novel coumarins annulated with heterocycle composed of four heteroatoms, one sulfur, and three oxygen atoms in a linear pattern. This is an effort to find readily available coumarin frameworks with a broad variety of biological properties that are both adjustable and easy to get. The synthetic annulates' structural framework was confirmed by means of spectroscopic techniques, which included <sup>1</sup>H-NMR, <sup>13</sup>C-NMR, and FTIR. The synthesized annulates were investigated in vitro for their biomedical potential as antioxidative stress, anti-inflammatory, antidiabetic, anticancer, and antimicrobial agents. In addition, their biosafety toward nontumor cells and commensal bacterial strains was also assessed in vitro. Computer-aided programs were employed to explore the toxicity and pharmacokinetic profiles of the synthesized annulates. Based on the findings that were obtained, the authors stated the following main outcomes. There have been promising and far-reaching biological effects of the synthesized heterocyclic coumarin annulates. HC1 demonstrated strong anti-inflammatory potential through the lipoxygenase-dependent route. Moreover, HC1 exhibited significant antifungal efficacy, surpassing that of nystatin. HC2 held great promise as an antioxidative stress, anticancer, and biosafe candidate. HC3 exhibited a strong antibacterial potential against all tested aerobic bacterial strains, demonstrating a potency equivalent to that of ciprofloxacin. In addition, all of the synthesized annulates, especially HC3, exhibited a noteworthy biosafety profile against the commensal bacterial strains. The strong inhibitory capabilities of HC6 and HC7 toward glucosidase and amylase indicate that they possess great promise as antidiabetic agents. Finally, the synthesized annulates showed favorable toxicity and oral bioavailability properties. It can be inferred that these annulates have the potential to be useful frameworks for developing new drugs with a broad spectrum of bioactivity in the coming years.

<input type="checkbox"/>	31	Optimizing Performance of Antenna Arrays with Clustered Fractal Shapes for Multiband Applications <i>Open Access</i>	Mohammed, J.R., Al-Khafaf, D.A.	2024	Journal of Telecommunications and Information Technology (1), pp. 91-96	0
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Fractal antennas are mainly used in multiband applications. However, these types of arrays suffer from numerous disadvantages, such as high sidelobe levels, low directivity, poor taper efficiency, and high design computational complexity. In this paper, the conventional fractal procedures are redesigned and efficient clustered subarrays are deployed, such that their multiband properties are maintained while simultaneously achieving significant improvements in radiation characteristics. A genetic optimization algorithm is used to find the optimal clustered fractal shapes and their associated amplitude distributions, such that the sidelobe levels are minimized at the narrower beam width, i.e. maximum feasible directivity. Since the optimization process is carried out at the clustered level, it can be represented by merely a few variables, which solves the problem of time intensity. Simulation results confirm the superiority of the proposed clustered fractal array, where the sidelobe level has been reduced to more than  $-10$  dB over a wide range of frequencies. Directivity and taper efficiency have been improved by more than 6 dB and 50%, respectively, in comparison to the parameters of conventional, original fractal arrays. Moreover, the proposed fractal array pattern offers an additional advantage, as it is capable of wide sidelobe nulling at some undesired directions.

<input type="checkbox"/>	32	The Mediating Role of Cobit 2019 in Managing the Relationship Between Qualitative Characteristics of Accounting Information and Information Asymmetry	Thabit, T.H., Abdullah, S.H.	2024	ICDXA 2024 - Conference Proceedings: 2024 3rd International Conference on Digital Transformation and Applications pp. 97-102	0
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This paper aims to determine how COBIT 2019 Framework (COB) and Quality Characteristics of Accounting Information (QC) affect Information Asymmetry (IA). The sample of this paper was the employees of the Commercial Bank of Iraq (CBIQ). These employees were surveyed and 99 valid e-questionnaires were used to gather data. Smart-PLS analysis was employed to establish reliability and validity and to evaluate the put out hypotheses. The findings showed that COB can play an influential role to reduce IA, and Organizations should prioritize improving the qualitative qualities of information because doing so can benefit both COB implementation and the decrease of IA. In addition, COB implementation can serve as a strategic strategy to harmonizing qualitative information features with the purpose of eliminating IA. However, this paper can help the employees to reduce the IA by producing good quality accounting information via COB.

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<input type="checkbox"/>	33	Scanned Antenna Arrays with Random Deactivated Elements <i>Open Access</i>	Yaseen, N.W., Mohammed, J.R.	2024	Progress in Electromagnetics Research Letters 119, pp. 1-6	0
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Usually inactive or also known as thinned elements are used to simplify the array design complexity by turning off some of the active elements in uniformly filled arrays. Consequently, the far-field radiation characteristics such as sidelobe level, beamwidth, and directivity may be negatively changed if no optimizer is used. Further, these radiation characteristics may be unavoidably deteriorated when the main beam is scanned to new directions other than the referenced broadside direction. In this paper, an efficient optimization method based on the genetic algorithm and a dynamic deactivation method is proposed to randomly deactivate a number of array elements to minimize the peak sidelobe level and at the same time maintain the array directivity undistorted, while scanning the main beam. The deactivation method chooses optimally the suitable number of elements and their locations that need to be deactivated such that the resulting radiation characteristics positively change according to the specified cost function. Also, the proposed scanned array uses binary coefficients to activate and deactivate the array elements, thus, the feeding network of the proposed array is very simple, and it can be easily implemented in practice. Through extensive simulation results, we show that the proposed optimization method has good performance under wide range of scanned main beam directions. It is also found that the number of deactivation elements (i.e., the optimization variables) increases with larger scan angle.

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<input type="checkbox"/>	34	An Optimization of Subarrayed Planar Array Pattern via Fractal Structure Thinning <i>Open Access</i>	Abdulqader, A.J.	2024	Progress In Electromagnetics Research M 125, pp. 127-134	0
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Dividing large planar arrays into several subarrays and then turning off some of them reduces the complexity (cost) of the system significantly. In this paper, two optimization stages for the formation of planar subarrays and the removal of some of them are proposed. The first optimization stage improves the pattern of the original planar array after dividing it into a set of rotational square and rectangular subarrays. In the second optimization stage, it works to remove some of the subarrays completely or partially, depending on new fractal structures derived from the conventional Sierpinski carpet structure. The proposed fractal-thinned planar array is based on amplitude-only excitation, i.e., the phases of the elements are set to zero. To execute the optimization steps above, a genetic algorithm (GA) is used. Some determinants are included in the optimization process to maintain the properties of the desired pattern. Simulation results showed the effectiveness of the proposed optimization method in achieving almost the same performance in both stages of optimization.

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<input type="checkbox"/>	35	tranexamic acid versus adrenaline-soaked pledgets for the reduction of intraoperative bleeding in functional endoscopic sinus surgery	Aziz, B., Al-Talibi, I., Darak, S.M., Mohammed, A.A., Alnori, H.	2024	Polski Mercuriusz Lekarski 52(1), pp. 36-41	0
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Aim: To examine the impact of locally applied tranexamic acid and adrenaline, separately and in combination, on intraoperative blood loss and surgical field quality during functional endoscopic sinus surgery. Materials and Methods: The study involved 40 patients with chronic rhinosinusitis. They were divided into two groups. Group I received adrenaline alone in one side and a mixture of adrenaline and tranexamic acid in the other side. Group II received adrenaline alone in one side and tranexamic acid in the other side. Parameters like surgery time, blood loss, and surgical field quality were studied. Results: In Group I, the combination of adrenaline and tranexamic acid significantly reduced blood loss and enhanced surgical field quality compared to adrenaline alone. In Group II, adrenaline outperformed tranexamic acid in shortening surgery duration and improving surgical field quality. However, there was no significant difference in blood loss reduction between adrenaline and tranexamic acid. Conclusions: The study concluded that tranexamic acid is less effective than adrenaline when introduced as topical intranasal pledgets in both decreasing the time needed for the surgery and improving the subjective satisfaction of the surgeon while there is no significant difference regarding decreasing intraoperative blood loss. The mixture of adrenaline and tranexamic acid pledgets are more effective than adrenaline-only pledgets in terms of decreasing the intraoperative blood loss and improving the surgeon's satisfaction with no significant difference regarding the time needed for the surgery.

<input type="checkbox"/>	36	Use of Proton Transfer Reaction in Spectrophotometric Determination of Tetracycline in the Presence of 2,6-diaminopyridine reagent	Al-Luhaiby, R.A., Al-Enizzi, M.S., Jasim, Z.U.	2024	Methods and Objects of Chemical Analysis 19(1), pp. 31-37	0
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A precise, reproducible, rapid, and highly sensitive spectrophotometric procedure was created for the micro determination of Tetracycline hydrochloride (TCH) in bulk form and pharmaceutical formulation. The suggested method depends on the proton transfer reaction by coupling the substance to be determined with the reagent 2,6-diaminopyridine in the basic medium to form a colored complex that shows the maximum absorption value at the wavelength of 385 nm. To reach the optimum conditions, different factors were studied. It was observed that Beer's law is followed in the range of (3-32 µg/mL) with a molar absorptivity of 18.755 L/mol.cm. The methods indicated a high degree of sensitivity in terms of limit of detection which was described to be as low as 0.137 µg/mL while the quantification limit was 0.458 µg/mL. The average recovery value was 97.45%, and the relative standard deviation value (RSD) was less than 4.3%. The correlation ratio with the detector was 2:1 (drug: reagent). Therefore, the proton transfer reaction was then applied successfully for the quantitative assay of tetracycline in its pharmaceutical preparations with satisfactory results.

<input type="checkbox"/>	37	Diagnostic validity and reliability of BT-RADS in the management of recurrent high-grade glioma	Ebaid, N.Y., Ahmed, R.N., Assy, M.M., (...), Alsowey, A.M., Abdelhay, R.M.	2024	Journal of Neuroradiology  Article in Press	0
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Background and purpose: BT-RADS is a new framework system for reporting the treatment response of brain tumors. The aim of the study was to assess the diagnostic performance and reliability of the BT-RADS in predicting the recurrence of high-grade glioma (HGG). Materials and Methods: This prospective single-center study recruited 81 cases with previously operated and pathologically proven HGG. The patients underwent baseline and follow-up contrast-enhanced MRI (CE-MRI). Two neuro-radiologists with ten years-experience in neuroimaging independently analyzed and interpreted the MRI images and assigned a BT-RADS category for each case. To assess the diagnostic accuracy of the BT-RADS for detecting recurrent HGG, the reference standard was the histopathology for BT-RADS categories 3 and 4, while neurological clinical examination and clinical follow up were used as a reference for BT-RADS categories 1 and 2. The inter-reader agreement was assessed using the Cohen's Kappa test. Results: The study included 81 cases of HGG, of which 42 were recurrent and 39 were non-recurrent HGG cases based on the reference test. BT-RADS 3B was the best cutoff for predicting recurrent HGG with a sensitivity of 90.5 % to 92.9 %, specificity of 76.9 % to 84.6 %, and accuracy of 83.9 % to 88.9 %, based on both readers. The BT-RADS showed a substantial inter-reader agreement with a K of 0.710 (P = 0.001). Conclusions: The BT-RADS is a valid and reliable framework for predicting recurrent HGG. Moreover, BT-RADS can help neuro-oncologists make clinical decisions that can potentially improve the patient's outcome.

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<input type="checkbox"/>	38	Microstrip Patch Antenna with Multi-Fins for Radio Frequency Energy Harvesting Applications <i>Open Access</i>	Hasan, M.M., Sabaawi, A.M.A.	2024	Progress In Electromagnetics Research C 142, pp. 61-73	0
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A novel multiband microstrip patch antenna (Antenna-1) is introduced in this paper to target the frequencies of interest required for RF energy harvesting applications, including mobile DCS (Digital Cellular System), mobile LTE (Long Term Evolution), mobile 5G, WLAN (Wireless Local Area Network), and WIMAX (Worldwide Interoperability for Microwave Access) services. The simulated results for the proposed antenna showed outstanding performance. The antenna supports a high number of total (11) eleven operating frequencies and covers all of the frequencies of the 2.4 GHz (IEEE 802.11) band, as well as the downlink frequencies of mobile DCS 1800 and the downlink frequencies for mobile LTE/5G (Band 68). The proposed antenna has achieved a high gain for most of its resonating frequencies, with a high gain of (4.49 dBi) at the frequency of (2.4527 GHz) and a peak gain of (6.349 dBi) at the frequency of (3.95 GHz). Furthermore, the proposed antenna achieved a high bandwidth capacity of (677 MHz) at the resonating frequency of (5.2 GHz), which covers a lot of frequencies utilized by WLAN, WIMAX, and mobile LTE services, making it a suitable antenna for radio frequency energy harvesting applications. Good agreement between the measured and simulation results was observed.

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<input type="checkbox"/>	39	Adulteration of Herbal Medicine and its Detection Methods <i>Open Access</i>	Alyas, A.A., Aldewachi, H., Aladul, M.I.	2024	Pharmacognosy Journal 16(1), pp. 248-254	0
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Hide abstract  [Locate full text](#) [Related documents](#)

People are increasingly turning to the use of herbal medicines (HMs) due to the growing trend of embracing nature and concerns about the adverse effects of conventional treatments. HMs provide a sense of safety because they are natural and intended for long-term use. However, herbal medicines are also associated with adverse effects. Furthermore, the use of these medicines poses dangers associated with the deliberate inclusion of synthetic substances, the intentional or accidental substitution of plant species, or simply the risk of mislabeling. While reports of illegal synthetic or pharmaceutical substances being added often involve herbal weight-loss and weight gain preparations, aphrodisiacs, treatments for rheumatic and inflammatory diseases, antidiabetic medications, and antihypertensive preparations, it appears that the substitution of plant species occurs across various categories of herbal medicines. This narrative aims to review the types of adulteration in herbal medicine, the analytical techniques used for detecting adulteration. In conclusion, more studies on the adulteration of HMs are required to inform health authorities and limit the use of these substances. Therefore, it is necessary to coordinate and encourage regulatory policies on HMs on a worldwide scale. Relevant regulatory agencies all over the world must be proactive and keep enforcing the necessary safeguards to protect public health by ensuring that all herbal medications approved for sale are secure and of a high enough standard.

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<input type="checkbox"/>	40	Nonlinear Model Predictive Control-based Collision Avoidance for Mobile Robot <i>Open Access</i>	Ismael, O.Y., Almaged, M., Abdulla, A.I.	2024	Journal of Robotics and Control (JRC) 5(1), pp. 142-151	2
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Hide abstract  [Locate full text](#) [Related documents](#)

This work proposes an efficient and safe single-layer Nonlinear Model Predictive Control (NMPC) system based on LiDAR to solve the problem of autonomous navigation in cluttered environments with previously unidentified static and dynamic obstacles of any shape. Initially, LiDAR sensor data is collected. Then, the Density-Based Spatial Clustering of Applications with Noise (DBSCAN) algorithm, is used to cluster the (Lidar) points that belong to each obstacle together. Moreover, a Minimum Euclidean Distance (MED) between the robot and each obstacle with the aid of a safety margin is utilized to implement safety-critical obstacle avoidance rather than existing methods in the literature that depend on enclosing the obstacles with a circle or minimum bounding ellipse. After that, to impose avoidance constraints with feasibility guarantees and without compromising stability, an NMPC for set-point stabilization is taken into consideration with a design strategy based on terminal inequality and equality constraints. Consequently, numerous obstacles can be avoided at the same time efficiently and rapidly through unstructured environments with narrow corridors. Finally, a case study with an omnidirectional wheeled mobile robot (OWMR) is presented to assess the proposed NMPC formulation for set-point stabilization. Furthermore, the efficacy of the proposed system is tested by experiments in simulated scenarios using a robot simulator named CoppeliaSim in combination with MATLAB which utilizes the CasADi Toolbox, and Statistics and Machine Learning Toolbox. Two simulation scenarios are considered to show the performance of the proposed framework. The first scenario considers only static obstacles while the second scenario is more challenging and contains static and dynamic obstacles. In both scenarios, the OWMR successfully reached the target pose (1.5m, 1.5m, 0°) with a small deviation. Four performance indices are utilized to evaluate the set-point stabilization performance of the proposed control framework including the steady-state error in the posture vector which is less than 0.02 meters for position and 0.012 for orientation, and the integral of norm squared actual control inputs which is 19.96 and 21.74 for the first and second scenarios respectively. The proposed control framework shows a positive performance in a narrow-cluttered environment with unknown obstacles.

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<input type="checkbox"/>	41	Exploring Quality of Life in Patients with Multiple Sclerosis: A Multidimensional Perspective <i>Open Access</i>	Ibrahim, R.H., Mahmood, H.J.	2024	Malaysian Journal of Nursing 15(3), pp. 99-105	0
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Background: This study aimed to investigate the quality of life (QoL) in patients with multiple sclerosis (MS) from Al Salm Teaching Hospitals in the city of Mosul. Methods: A sample of 500 MS patients was included in the study, and their QoL was assessed using validated measurement tools for physical, psychological, and social well-being. Descriptive statistics and correlation analyses were conducted to examine the relationships between different dimensions of QoL and symptoms of anxiety and depression. Results: The results indicated that MS patients reported moderate levels of physical, psychological, and social well-being. Specifically, physical well-being was characterized by moderate levels of physical functioning, bodily pain, and general health perception. Psychological well-being was moderate in terms of vitality, social functioning, and emotional role limitations. Social well-being was also at a moderate level, considering social functioning and the impact of physical health on social activities and relationships. However, anxiety and depression symptoms were prevalent and negatively affected all aspects of QoL. Conclusion: The findings highlight the complex nature of QoL in MS patients and the importance of addressing physical, psychological, and social well-being in their management. The results are consistent with previous research, emphasizing the universal challenges faced by MS patients. The study underscores the need for targeted interventions and comprehensive support systems to improve the QoL of MS patients.

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<input type="checkbox"/>	42	Unconventional Method for Antenna Array Synthesizing Based on Ascending Clustered Rings <i>Open Access</i>	Mohammed, J.R.	2024	Progress in Electromagnetics Research Letters 117, pp. 69-73	0
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Recently, clustered antenna arrays have been proved as an efficient method in implementing the large planar arrays for massive MIMO wireless communications in 5G and beyond applications. However, obtaining optimum clustering configurations needs a high computational time, and it does not guarantee a total clustering coverage of the whole array aperture. In this paper, a new and unconventional array pattern synthesis method based on ascending/descending clustered subarray rings is presented. The method is equally applicable to the rectangular and circular planar arrays where they are first divided into multiple square or circular clustered rings starting from the largest ring at the array perimeter up to the last ring (the smallest one) at the array center. Then the amplitude distributions of these clustered rings are optimized to obtain the desired radiation characteristics subject to the user-defined constraint mask. Implementation of the proposed array at the clustered level instead of the conventional element level offers many advantages such as simplified feeding network, efficient taper efficiency, low side lobe level, and high directivity. Simulation results show the effectiveness of the proposed method for both square and circular planar array layouts.

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<input type="checkbox"/>	43	Prevalence of Chronic Non-Communicable Respiratory Diseases in Mosul City <i>Open Access</i>	Ibrahim, R.H., Malallah Al- Nuaimy, A.A.	2024	Malaysian Journal of Medicine and Health Sciences 20(1), pp. 205-211	0
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Introduction: Chronic non-communicable respiratory diseases (CNCRDs) encompass a group of conditions affecting the airways and lung structures, including Chronic Obstructive Pulmonary Disease (COPD), emphysema, allergic rhinitis, asthma, pulmonary arterial hypertension, and cystic fibrosis. CNCRDs pose a significant global health challenge, resulting in approximately four million deaths annually. This study aimed to identify the prevalence and risk factors associated with CNCRDs and measure trends in the prevalence of these risk factors over time. Methods: A cross-sectional epidemiological study was conducted using data collected from primary health centers on both sides of Mosul City. The study period extended from January 1 to July 31, 2022, with information obtained from (40) primary health centers, consisting of (20) centers on the right side and (20) centers on the left side of Mosul. Results: In 2021, the City of Mosul recorded a total of 13,005 registered cases, with 5,598 cases being attributed to asthma (43%), and 7,347 cases being associated with COPD (57%). Bronchial asthma constituted 43% of cases, with 5598 patients, and the highest incidence occurred in the age group between 20-44 years. Conclusion: The prevalence of bronchial asthma and COPD among patients with CNCRDs in Mosul is alarmingly high. It emphasizes the importance of implementing preventive policies and strategies targeting modifiable risk factors for these respiratory conditions.

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<input type="checkbox"/>	44	Imaging Receiver for Fairness of NOMA-VLC Systems	Younus, S.H., Ahmed, M.A.	2024	International Journal of Microwave and Optical Technology 19(1), pp. 109-116	0
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In this work, an imaging receiver is proposed to enhance user fairness and reduce the outage probability in non-orthogonal multiple access (NOMA) based on visible light communication (VLC) systems. One of the key advantages of employing this type of receiver, which contains arrays of pixels, is the ability to achieve the orientation of any pixel towards one transmitter, which means that numerous transmitters can be realized by the imaging receiver at its position. This enables the system to satisfy the balancing of users between transmitters efficiently. At each user terminal, an electrical power observer (EPO) is installed to observe the channel conditions between users and transmitters. Based on the feedback signals from EPO, the system splits the users into small groups and each group is related to one transmitter. Results show that our proposed system can serve up to 15 users with user fairness equal to 1, with a data rate of up to 70Mbps while the error rate (BER) is less than  $10^{-6}$  with acceptable outage probability.

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<input type="checkbox"/>	45	Enhanced Far-Field Localization Scheme Using Multi-RIS and Efficient Beam Sweeping <i>Open Access</i>	Alhafid, A.K., Younis, S., Ali, Y.E.M.	2024	Progress In Electromagnetics Research C 140, pp. 163-175	0
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Hide abstract  [Locate full text](#) [Related documents](#)

Future 6G networks are anticipated to use reconfigurable intelligent surfaces (RISs) because of their capability to expand coverage, provide a customizable wireless environment, increase localization accuracy, etc. In this paper, RIS-aided localization is considered with orthogonal frequency division multiplexing (OFDM) and single-input single-output (SISO) downlink system in millimeter-wave (mmWave). An efficient beam sweeping (EBS) scheme is proposed accomplished by an RIS to scan the area of interest and estimate the direction of the user equipment (UE), i.e., the signal's angle of departure (AoD). The AoD with the measured signal time of arrival (ToA), from the RIS to the UE, is used to estimate the UE position. The ToA measurements can be obtained by exploiting the OFDM signal, while the beam sweeping can be obtained by carefully designing the RIS phase profile. The first step of the proposed EBS scheme is to scan the whole area of interest with equally spaced beam angles for coarse estimation of AoD. Then, based on this estimation, the RIS is reconfigured to sweep a slight angle's range by narrow beams to refine the AoD estimation. Besides, a multi-RIS scenario is proposed, and leveraging the EBS and the consensus fusion method is used to obtain accurate position estimation. Simulation results demonstrate that the proposed EBS in single and multi-RIS scenarios enhances positioning accuracy compared to linear beam sweeping (LBS) methods. Also, the impact of increasing the number of RIS elements and number of sweeping beams, as well as the number of RISs, is investigated thoroughly via numerical simulations. Furthermore, the achievable localization accuracy is assessed using the positioning error bound (PEB).

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<input type="checkbox"/>	46	Isolation and Purification of Bacteriocin from <i>Escherichia coli</i> and Study its Synergistic Effect with Antibiotics and Nanoparticles on Pathogenic Bacteria	Abdullah, M.A., Essa, M.A.	2023	AIP Conference Proceedings 2862(1),020008	0
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Antibiotic resistance is becoming remarkably prominent and urgent in clinical practice with the increasing and wide application of antibacterial drugs. Bacteriocins, peptidic toxins produced by bacteria, offer promising potential as substitutes or conjugates to current therapeutic compounds. These peptides exhibit significant potency against certain bacteria (including multidrug-resistant species). The study aimed to isolate and purify bacteriocin from *Escherichia coli* isolated from different sources (clinical and sewage) and study its synergistic effect with antibiotics and nanoparticles against *Staphylococcus aureus* and *Pseudomonas aeruginosa* as Indicator isolates that have multiple resistance towards antibiotics. Thirty isolates of *Escherichia coli* were diagnosed, 11 of them were producing crude bacteriocin in terms of the Indicator isolates, partial purification of bacteriocin was carried out and its synergistic effect was measured with each of the antibiotics Vancomycin, Ceftazidime, Zinc Oxide Nanoparticles (ZnO) and Titanium Oxide Nanoparticles (TiO<sub>2</sub>). after measurement of The minimum inhibitory concentrations (MIC) for each of them, as the results showed that the MIC values of antibiotics and nanoparticles decreased when mixed with bacteriocin, and the FICI (Fractional Inhibitory Concentration Index) value of (Vancomycin + bacteriocin) and (Ceftazidime + bacteriocin) was between (0.25-0.5) and (0.126-0.5), respectively, and the FICI value of (ZnO + bacteriocin) and (TiO<sub>2</sub> + bacteriocin) for *Staph. aureus* was between (0.062-0.126), While for (ZnO + bacteriocin) and (TiO<sub>2</sub> + bacteriocin) of *P.aeruginosa* was between (0.062-0.126), and these values fall within the range of synergistic interactions. The results of this study show that bacteriocin is a potential alternative agent against common pathogens, and could be included in the development of new therapies to inhibit the growth of pathogenic bacteria.

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| <input type="checkbox"/> | 47 | Evaluation of LoRa WAN network performance for a water level sensing and monitoring scenario in Mosul Dam<br><i>Open Access</i> | Almonem, A.A.,<br>Al Janaby, A.O. | 2023 | AIP Conference Proceedings<br>2862(1),020014 | 0 |
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The Mosul Dam project was built on weakly, unstable generational land, and when it enters into contact with the water, its properties change. As a result, excess water in several vertical apertures in the dam's body must be observed to warn against the possibility of the dam collapse. A bar scale is used to initially measure the water column depth in the dam apertures. This research proposes a new system using wireless sensors injected as a floated object on the water columns altimeter and sending the water-level values to LoRa-WAN in real-time. This study simulates a new Long Range Wide Area Network (LoRa-WAN) technology to monitor a variety of water levels in Mosul Dam, which is linked to an Internet of Things (IoT) structure that is based on wireless sensor networks (WSNs). A LoRa gateway is employed to transfer these data over it. Alerts will be transmitted by end devices and received by the LoRa WAN, showing the specific end devices position, if the water levels exceed the allowable predetermined level. The network will then take suitable measures. This paper displays a simulation software implementation omnet++ to evaluate the performance of LoRa as an outcome of implementation across the FLoRa framework to simulate monitoring the water level in Mosul Dam. The performance impact of LoRa networks was evaluated on Network Energy Consumed and Packet Delivery Ratio for (1) the number of gateways, and (2) the distance between each end device and the LoRa gateway. Our results demonstrated that optimizing the parameters that impact a LoRa network's performance can convert traditional monitoring to smart monitoring as well as the capability of one LoRa gateway to run up to (1000) end devices.

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<input type="checkbox"/>	48	Insight into Topical Preparations for Wound Healing: Traditional and Modern Dressings <i>Open Access</i>	Ghanim, Z.S., Alkotaji, M., Qazzaz, M.E.	2023	Al-Anbar Medical Journal 19(2), pp. 89-97	0
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The authors conducted an extensive literature search of the Science Direct, Scopus, PubMed, and Web of Science databases. Published studies and original articles published in reputed peer-reviewed journals reporting original research were considered. Different wound dressings show different properties and may have different applications depending on the types of wounds. Traditional wound dressings (like gauze), mainly used for clean and dry wounds with mild exudate, are cheap and affordable, however, they suffer from many limitations; including adherence to the skin, pain in removal, contamination with bacteria, and other obstacles. On the other hand, modern dressings have many advantages, such as the fact that they do not adhere to the wound, they are easily removed, and many other advantages. The introduction of nanotechnology in the field has accelerated the discovery and the applications, and many new pharmaceutical products for wound treatment will enter the market soon. Therefore, evaluating the advantages and limitations of different types of dressings and determining a suitable type of wound dressing to be applied is crucial. This article aims to explain the different types of wound healing agents or dressings available to treat acute or chronic wounds.

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<input type="checkbox"/>	49	Performance Investigation of RIS Aided Localization with TDoA in the Near-Field	Alhafid, A.K., Ali, Y.E.M., Younis, S.	2023	Mathematical Modelling of Engineering Problems 10(6), pp. 2127-2134	0
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Reconfigurable intelligent surfaces (RIS) are forecasted to assume a pivotal role in future wireless communication systems, largely attributed to their capacity to dynamically alter the propagation environment. This study primarily concentrates on the utilization of large RIS, leading to near-field propagation channels, especially in high-frequency communication systems. This is aimed at resolving the complex issue of single anchor-based localization, particularly under conditions where the line-of-sight (LoS) path is prone to severe blockage and fading. In this context, a millimeterwave localization problem, based on time difference of arrival (TDoA), utilizing orthogonal frequency division multiplexing (OFDM) downlink signaling, has been modeled and simulated. The time of arrivals (ToA) measurements, enriched from each RIS tile, are applied to determine user positions. It is recognized that some ToA readings may possess low signal to noise ratio (SNR), making them unsuitable for inclusion in the estimation. Subsequently, various scenarios for RIS tile selection were examined in this research, with the aim of enhancing localization accuracy. Numerical results substantiate the efficacy of the TDoA-RIS algorithm in improving localization accuracy. This is achieved through different strategies to select the most reliable 50% of ToA measurements for the formulation of the estimation procedure.

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<input type="checkbox"/>	50	Hair Fall Count 60-second: Clinic-Based Modified Count Versus Home-Based Count <i>Open Access</i>	Fathi, H.B., Abdulqader, M.N., Abdullah, O.Y.	2023	Al-Anbar Medical Journal 19(2), pp. 123-127	0
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Background: Female diffuse alopecia is a common dermatologic problem. Consequently, a simple, quick, and quantitative assessment is required to aid in diagnosis. A clinic-based modified hair fall count in 60 seconds is proposed as a new, simple, and quick method for evaluating hair loss. Objectives: To assess bias and limit of agreement between the new Clinic-based modified hair fall count in 60 seconds (CBMHFC 60-S) and conventional home-based hair fall count in 60 seconds (HBHFC 60-S) determining hair fall in women with diffuse hair loss. Materials and methods: Seventy-five women with diffuse alopecia recruited from Al-Salam Teaching Hospital, Mosul, Iraq underwent assessment of hair fall count by using two instruments, new single reading (CBMHFC 60-S) and conventional three reading (HBHFC 60-S). A multistage statistical analysis of validity tests was used to assess the performance of CBMHFC 60-S in comparison to HBHFC 60-S. These included the estimation of the difference between both methods; correlation and prediction; and lastly estimating accuracy (amount of bias and limits of agreement) using Bland Altman blot. A P-value of < 0.05 was considered a statistically significant difference. Results: A non-statistically significant difference (P-value = 0.06) in average hair fall count was estimated by CBMHFC 60-S and HBHFC 60-S ( $15.81 \pm 7.16$  vs  $18.18 \pm 8.56$ ). A very highly significant linear relationship between both tests ( $r = 0.434$ ,  $P < 0.0001$ ). A regression analysis yields the following prediction equation [CBMHFC 60-S =  $9.21 + 0.36 * (\text{HBHFC } 60\text{-S})$ ]. Bland-Altman blot revealed a high accuracy of the CBHFC 60-S. The count was less than HBHFC 60-S count by an average of 2.38 hairs. The 95% CI of CBMHFC 60-s in comparison to HBHFC 60-S will fall between -18.95 and 14.19. Conclusion: The new single reading CBMHFC-60S estimation of hair fall count was a valid test reflected by its strong association with an average of three readings of conventional HBHFC-60 and high concordance (low bias and high precision).

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| <input type="checkbox"/> | 51 | Reduction of Torque Ripple in Switched Reluctance Motor Drives Through Optimum Commutation Angles Control<br><i>Open Access</i> | Ibrahim, M.A.,<br>Alsammak,<br>A.N.B. | 2023 | Journal Europeen des Systemes Automatisees<br>56(6), pp. 945-950 | 0 |
|--------------------------|----|---|---------------------------------------|------|--|---|

The rising demand for clean and abundant energy sources has guided growing interest in transportation electrification. Recently, a broad interest in electric vehicles (EVs) and their development has begun due to oil depletion, price rise, and the air pollution produced by cars with internal combustion engines (ICE). Therefore, the researchers are motivated to seek alternative energy sources to propel the car. Nowadays, switched reluctance motor (SRM) is gaining more and more attention in recent high-speed industrial applications. The researcher's trend has moved towards developing more environmentally friendly systems. This study aims to improve the SRM drive system to achieve reliability and torque quality. It proposes a rapid optimization-based bacterial foraging procedure for selecting the optimum value commutation angles. Quality indicators like torque ripple measure motor performance in terms of acoustic noise and mechanical vibration. The percentage of torque ripple is employed as a metric to assess the quality of SRM drive torque. The results indicate that minimizing torque fluctuations in an SRM motor is feasible by selecting an appropriate commutation angle through optimization.

<input type="checkbox"/>	52	Optimal Fusion of Multispectral Optical and SAR Images for Flood Inundation Mapping through Explainable Deep Learning <i>Open Access</i>	Sanderson, J., Mao, H., Abdullah, M.A.M., Al- Nima, R.R.O., Woo, W.L.	2023	Information (Switzerland) 14(12),660	1
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In the face of increasing flood risks intensified by climate change, accurate flood inundation mapping is pivotal for effective disaster management. This study introduces a novel explainable deep learning architecture designed to generate precise flood inundation maps from diverse satellite data sources. A comprehensive evaluation of the proposed model is conducted, comparing it with state-of-the-art models across various fusion configurations of Multispectral Optical and Synthetic Aperture Radar (SAR) images. The proposed model consistently outperforms other models across both Sentinel-1 and Sentinel-2 images, achieving an Intersection Over Union (IOU) of 0.5862 and 0.7031, respectively. Furthermore, analysis of the different fusion combinations reveals that the use of Sentinel-1 in combination with RGB, NIR, and SWIR achieves the highest IOU of 0.7053 and that the inclusion of the SWIR band has the greatest positive impact on the results. Gradient-weighted class activation mapping is employed to provide insights into its decision-making processes, enhancing transparency and interpretability. This research contributes significantly to the field of flood inundation mapping, offering an efficient model suitable for diverse applications. This study not only advances flood inundation mapping but also provides a valuable tool for improved understanding of deep learning decision-making in this area, ultimately contributing to improved disaster management strategies.

<input type="checkbox"/>	53	Exploring deep learning approaches for video captioning: A comprehensive review <i>Open Access</i>	Yousif, A.J., Al-Jammas, M.H.	2023	e-Prime - Advances in Electrical Engineering, Electronics and Energy 6,100372	1
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While humans can easily describe visual data at varying levels of detail, the same task presents a significant challenge for machines. This challenge becomes even more complex when dealing with video data. The process of understanding a video and generating descriptive text for it is known as video captioning. Video captioning requires not only understanding the visual content but also producing human-like descriptions that accurately capture its semantics. Achieving this level of understanding requires the collaborative efforts of both the computer vision and natural language processing research communities. The captions produced through video captioning serve as valuable resources that can be further leveraged for various applications such as video search, accessibility for visually impaired people, and human-robot interaction. Deep learning strategies have emerged as powerful tools in addressing the complexities of video captioning. By leveraging large scale annotated video caption datasets and sophisticated neural network architectures, deep learning approaches have made significant advances in this challenging task. In the existing literature, numerous techniques, benchmark datasets, and evaluation metrics have been developed, emphasizing the necessity for a comprehensive examination to concentrate research efforts in this rapidly evolving field. This paper provides a survey of deep learning based methods for video captioning, highlighting their key components, challenges, and recent advancements.

<input type="checkbox"/>	54	Current contributions of novel nanoparticles-based colorimetric sensors for detection of SCN ions in different aqueous models. A review <i>Open Access</i>	Zeebaree, A.Y.S., Zebari, O.I.H., Zeebaree, S.Y.S., Thanoon, R.D., Yaseen, Y.N.	2023	Arabian Journal of Chemistry 16(12),105297	2
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The development of novel and effective sensors is inevitable for detecting environmental pollutants, including toxins, organic pollutants, and heavy metals, which have hazardous effects on living organisms. Despite the challenges faced by this technology, sensors have played a crucial role in detecting various analytes with high sensitivity and producing reliable results. Metal nanoparticles, owing to their significant optical properties, unique sizes, shapes, and biocompatibility, have been widely utilized in detecting numerous hazardous pollutants such as heavy metals, textile dyes, pesticides, herbicides, banned surfactants, and harmful food supplements. The fundamental characteristic of these nanomaterials is their ability to change color based on their maximum absorption wavelength, known as surface plasmon resonance (SPR). Due to the simplicity, speed, and sensitivity of nanoparticle-based colorimetric sensing, this method has been extensively utilized in rapid testing, real-time monitoring, and reducing the time required to assess the quality and safety of water. Recently, this property has been extensively exploited for detecting various pollutants, including thiocyanate ions, which affect water quality. In this review, we discuss the preparation methods, functional enhancement, and optical property diagnosis of newly developed nanometals as colorimetric sensors and their application as rapid testing tools for detecting thiocyanate ions in water models. Additionally, we outline the suggested colorimetric sensing mechanism for this ion, along with the advantages and drawbacks of colorimetric sensors based on nanometals. This discussion aims to provide researchers with insights to avoid these limitations and encourage the development of better sensors in the future.

<input type="checkbox"/>	55	Effects of simulated zero gravity on adhesion, cell structure, proliferation, and growth behavior, in glioblastoma multiforme <i>Open Access</i>	Altaie, S., Alrawi, A.	2023	Nanotechnology and Precision Engineering 6(4),043002	1
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HIGHLIGHTS • Zero gravity changes the growth behavior of cancer cells • In zero gravity, cancer cells lose their adhesion and then die • Zero gravity is a new line of cancer treatment

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 56	Physical activity, perceived benefits and barriers toward exercise among schoolteachers in Irak   [Actividad física: beneficios y limitaciones percibidos entre maestros de escuela de Duhok, Irak]	Abdullah, R.Y., Ibrahim, R.H.	2023	Social Medicine 16(3), pp. 133-144	0

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Introduction, Inadequate physical activity is a contributing factor to various non-communicable diseases. The benefits of regular exercise have been well demonstrated, and evidence shows that adults are becoming more sedentary and obese due to a lack of opportunities for and obstacles to exercise participation. Objective: The study aimed to identify physical exercise's perceived benefits and barriers among schoolteachers. Methods: The exercise benefits and barriers were assessed by conducting a cross-sectional design with 500 schoolteachers in Duhok City in Kurdistan Region, Iraq. Teachers enrolled using stratified simple random sampling from September 15th, 2021 to April 1st, 2022. Data on socio-demographic characteristics, perceived benefits and barriers of exercise, and physical activity levels were obtained. Results: Most schoolteachers (65.8%) had a low physical activity level. Exercise improves the appearance of the body as well as disposition; mental health, a functioning cardiovascular system, flexibility, and ability to sleep better at night were the most important perceived benefits of exercise. Furthermore, "too few exercise places" was the most significant barrier to exercise, followed by other significant barriers including "inconvenient exercise facility schedules," "fatigue," "too far away from exercise places," "tiredness," "time limitations," "family responsibilities," and "being embarrassed to exercise." There was a significant difference between PA levels and exercise benefit, and the barrier score was  $p < 0.0001$ . Conclusions: Teachers have high perceptions of the physical and psychological benefits of exercise. However, perceived barriers have a higher impact on exercise habits and are linked to a lack of motivation and a lack of self-management to schedule physical exercise.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 57	Occupational Noise-Induced Hearing Loss in the City of Mosul: A Cross-sectional Study <i>Open Access</i>	Nofan, S., Ibrahim, R.H.	2023	Malaysian Journal of Medicine and Health Sciences 19(6), pp. 249-256	0

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Introduction: This study aimed to investigate the distribution of demographic characteristics and the prevalence of hearing loss among workers. Methods: The study sample consisted of 160 participants, and various demographic variables were examined. Data regarding age, gender, work experience, work hours, work nature, and work type were collected and analyzed. The degrees of hearing loss in the bilateral, left, and right ears were assessed, and the prevalence of hearing loss among different work types was examined. Audiograms were utilized to assess the degrees of hearing loss. The limitations of this study include a small sample size, and the cross-sectional design preventing causal relationships. Results: The majority of participants were male, and the age distribution showed a higher representation in the 30-49 years age range. The degrees of hearing loss were predominantly intermediate in the bilateral, left, and right ears. Military personnel had the highest prevalence of hearing loss, followed by builders, drivers, carpenters, and bakers. The logistic regression analysis indicated limited predictive power for age, diabetes mellitus (DM), years in the job, and years in the current job. However, the absence of formal training emerged as a significant factor associated with an increased likelihood of potential hearing loss. Conclusion: The findings highlight the importance of considering demographic characteristics and occupational factors in assessing the prevalence of hearing loss among workers. The results emphasize the need for occupational training programs and increased awareness of hearing protection measures in the workplace to mitigate the risk of hearing loss. *Malaysian Journal of Medicine and Health Sciences* (2023) 19(6):249-256.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 58	Molecular docking of antioxidant activity of bougainvillea spectabilis wild bractea ethanol fraction with aryl hydro carbon inhibitors and vitamin C comparator <i>Open Access</i>	Yulianil, N.N., Siswandono, Erawati, T., (...), Poddar, S., Ibrahim, R.H.	2023	Journal of Medical Pharmaceutical and Allied Sciences 12(6), pp. 6274-6280	0

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Antioxidant compounds are increasingly being used in the health sector. In the health sector, antioxidant compounds also have a very important role. Antioxidant compounds have been scientifically proven to reduce the risk of chronic diseases, such as cancer, coronary heart disease, disorders such as redness, hyperpigmentation, wrinkles and premature aging. Antioxidant compound found in many plants, both bracteas, leaves and fruit, one of which is bracteas Bougainvillea spectabilis Willd. The ethanol fraction of bracteas Bougainvillea spectabilis Willd include: butyl hydroxytoluene; p-Trimethylsilyloxyphenyl (tri.methylsilyloxy) trimethylsilylacrylate; 2,5 pyrrolidinedione, 1-methyl; Dimethylsulfoxonium formylmethylide; Formamide, N,N-dimethyl; Dimethyl sulfone and Cyclotetrasiloxane, octamethyl. Identified by the Liquid Chromatography - Mass Spectrometry method, then docked with Molegro Virtual Docker. Butyl hydroxytoluene has the same Root Mean Square Deviation value as vitamin C and smaller than the standard ligand BHF\_401 (A), which can be seen from Rerank scores are -76,0629, -76,1096, -105,0070. Hydrogen and electrostratic bonds in the ethanol fraction: Butyl hydroxytoluene with 3 amino acid residues including Tyr 334, Leu 292 and Leu 281, in the control Vitamin C with 9 amino acid residues Tyr 336, Leu 307, Val 308, As 306, Tyr 305, Gly 304, Gly 303, Phe 279 and His 275 with standard ligand BHF\_401 (A) with 4 amino acid residues Val 316, Tyr 305, His 275 and Tyr 334. Butyl hydroxytoluene more harmonious and stable and as a candidate for antioxidant drugs that have the same activity as vitamin C as a positive control.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	59 Software Defined Radio (SDR) Signals Classification via Convolutional Neural Networks	Yahya, Z.Z., Ali, D.M.	2023	International Journal of Microwave and Optical Technology 18(6), pp. 607-616	0

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Automated Modulation Classification (AMC) stands as a foundational technique within non-cooperative communication systems, showcasing its intrinsic adaptability to various intricate environments. This study encompasses a dual-phase approach: the initial phase involves the design of eight distinct digital modulation transceivers utilizing LabVIEW NXG, followed by their practical implementation in real-world scenarios through the Universal Software Radio Peripheral (USRP)-X310 a Software Defined Radio (SDR) technology at the microwave frequencies 915 MHz, 2.45 GHz, and 3 GHz carrier frequencies. Subsequently, the second phase entails the retraining of three pre-trained Convolutional Neural Network (CNN) algorithms – MobileNet-V2, ResNet-50, and ResNet-18 – for the purpose of accurately classifying the 16 Ms/sec received modulated signals. The proposed methodology attains impressive accuracy rates of approximately 94.64% for MobileNet-V2, 92.86% for ResNet-50, and 96.43% for ResNet-18, respectively.

<input type="checkbox"/>	60 Flexible and Highly Stable Textile-Based Symmetric Supercapacitor Comprising Binder-Free MnO <sub>2</sub> /rGO-CF Nanocomposite Electrodes	Dutt, S., Verma, S., Singh, A., (...), Agha, D.N.Q., Arya, S.	2023	Journal of Electronic Materials 52(11), pp. 7447-7458	1
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Energy and environmental issues are one of the most serious problems that humanity faces worldwide. Furthermore, highly proficient energy storage technologies are required because most sustainable energy sources are sporadic. Supercapacitors have gained a lot of scientific consideration owing to their good power density, cost-effectiveness, high cyclic stability, and environmental approachability. Here, the structural as well as electrochemical performance of an electrodeposited MnO<sub>2</sub>/rGO-conductive fabric (CF) nanocomposite as a binder-free electrode for implementation in supercapacitors is investigated. The morphology of the synthesized MnO<sub>2</sub>/rGO nanocomposite was investigated using scanning electron microscopy and its crystalline nature was investigated using x-ray diffraction, while the electrochemical behavior was observed via cyclic voltammetry, electrochemical impedance spectroscopy, and galvanostatic charge–discharge testing (GCD). The outcomes demonstrated that the synergistic interaction involving the pseudo-capacitance of MnO<sub>2</sub> and high conductivity of graphene generates significant capacitance, and reveals the material's (synthesized) potential as supercapacitor electrodes. At 2 mA (4 A/g), the MnO<sub>2</sub>/rGO-CF nanocomposite demonstrated a satisfactory specific capacitance of 360.04 F/g. Moreover, the synthesized nanocomposite of MnO<sub>2</sub>/rGO-CF is capable of functioning in either the cathode or the anode role. Further, the fabricated symmetric supercapacitor sustained ~ 100% of its capacitance after 10,000 GCD cycles, which demonstrates its outstanding cyclic stability. Graphical Abstract: [Figure not available: see fulltext.]

<input type="checkbox"/>	61	Spatio-temporal modelling with multi-gradient features and elongated quinary pattern descriptor for dynamic facial expression recognition	Al-Sumaidae, S.A.M., Abdullah, M.A.M., Al-Nima, R.R.O., Dlay, S.S., Chambers, J.A.	2023	Pattern Recognition 142,109647	5
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We propose a new spatio-temporal modelling approach for Dynamic Facial Expression Recognition (DFER). We first convert the domain of the spatial images in the sequence to the gradient of magnitude and angle images at different orientations. Robust gradient components are developed to deal with difficult types of illuminations, such as darkness, by forming the eight edge responses of the Gaussian mask. To describe the dynamic Facial Expression (FE) changes we extend the Elongated Quinary Pattern (EQP) descriptor to encode separately the anisotropic structure of the uniform patterns from Three Orthogonal Planes (TOP) of each gradient sequence. Then each encoded sequence is divided into a stack of block volumes in the XY, XT and YT planes. For each plane, the co-occurrence of histogram features are calculated from each block volume and concatenated together. Simple three-dimensional histogram features are generated by concatenating the histogram features of all planes. A Multi Classifier System (MCS) based on a multi-class Support Vector Machine (SVM) is adopted to combine all scores for the encoded sequences. The proposed approach is evaluated with the challenging MMI and Oulu-CASIA databases with different set-ups and advantage has been shown in terms of generalisation to different databases, together with robustness against difficult pose variations and illumination changes. In terms of Recognition Accuracy (RA), a comparison is established with DFER methods in the literature. A high recognition rate of 79.23% is attained in the case of six classes when applied to the MMI database which surpasses all the state-of-the-art results.

<input type="checkbox"/>	62	A winning formula for nursing education: Effective study strategies and techniques <i>Open Access</i>	Sulaiman, M.H., Jasim, M.S., Ahmed, A.A., (...), Ibrahim, R.H., Al-Mashhadany, O.I.	2023	Teaching and Learning in Nursing 18(4), pp. e142-e145	2
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This quantitative study aimed to investigate the effectiveness of study strategies among nursing students at Ninevah University's College of Nursing during the academic year 2022-2023. A sample of 300 nursing students was randomly selected, and data was collected through a self-administered questionnaire. Correlation analysis revealed significant positive correlations between study hours per week ( $r = 0.36$ ,  $p < 0.01$ ), study groups ( $r = 0.29$ ,  $p < 0.01$ ), and practice quizzes ( $r = 0.23$ ,  $p < 0.01$ ) with overall study effectiveness rating. However, no significant correlation was found for study app usage. The findings suggest that increasing study hours, engaging in study groups, and utilizing practice quizzes can enhance study effectiveness for nursing students. These results have implications for the development of effective study strategies in nursing education, benefiting students, educators, and policymakers.

<input type="checkbox"/>	63	Frequency Reconfigurable Antenna With Defected Ground Plane and Parasitic Element for Multi-Standard Wireless Applications	Najim, F.M., Jasim, A.A., Salim, M.S., Mohammed, M.B., Basheer, B.S.	2023	AIP Conference Proceedings 2845(1),070016	0
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In this paper, a frequency reconfigurable planer antenna with defected ground plane (DGP) is presented for covering two wireless standard applications bands (2 GHz and 5.2 GHz). Where a parasitic element is added on the ground plane to shift the frequency range from 5.2 GHz to 2 GHz after connect it with the ground layer. The addition of the parasitic element with the ground plane helps to switch to the lower frequency without modifying the geometry of the antenna. Additionally, it avoids the disturbance that could happen due to adding a radiation element such as PIN or varactor diode close to the antenna radiation layer. Computer Simulation Technology (CST) microwave studio is exploited to simulate the model and obtain better results. Then, the antenna was fabricated and measured practically for validation and comparing the measurement results with the simulated results.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	64 RF rectifiers with voltage doubler for wireless implantable devices	Hussein, D.H., Sabaawi, A.M.A.	2023	AIP Conference Proceedings 2804(1),040020	0

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In this paper, single- and double-stage RF rectifiers operating at 433 MHz and 915 MHz for wireless implantable devices were designed. The designed circuits were simulated by using ADS simulation tools. The circuit is simulated on a FR-4 substrate layer with dielectric constant of 4.1 and a thickness of 1.6 mm. In addition, microstrip lines were added to the circuit to connect the circuit elements and mimic the real case and achieve more accurate results. The results showed that the achieved output voltage of the single stage rectifier was around 3.5 V with a total conversion efficiency up to 60 %. On the other hand, the 915 MHz rectifier was able to provide an output voltage of more than 1 V and a conversion efficiency of 7%. The contribution of this work is the attempt to compare the performance of the same RF rectifier but at different frequency bands.

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<input type="checkbox"/>	65 Prophylactic Effect of N-Acetyl Cysteine on Salivary Glands Against Oxidative Stress in Male Albino Rats: Biochemical and Histological Study	Thanoon, S.I., Taqa, G.A., Alkataan, M.A.	2023	Egyptian Journal of Histology 46(3), pp. 1165-1174	0
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**Aim of the Study:** This research aimed to examine the protective antioxidant role of N-acetyl cysteine (NAC) against H<sub>2</sub>O<sub>2</sub> induced oxidative stress in male albino rats. **Material and Methods:** Forty adult male albino rats were randomly divided into 4 groups: Group1 (Negative Control Group) (n=10): Normal diet and tap water for drinking, injected daily with 1ml/kg distilled water(DW) (i.p.) for 4 weeks. Group2: (H<sub>2</sub>O<sub>2</sub> Treated Group) (n=10) received normal diet, drinking water containing 0.5% H<sub>2</sub>O<sub>2</sub> daily to induce oxidative stress and injected daily with 1 ml/kg body weight distilled water(i.p.) for 4 weeks. Group3: (NAC Group) (n=10) received normal diet, tap water for drinking and injected daily with NAC 150 mg /kg body weight (i. p.) for 4 weeks. Group 4: (Protected Group) (NAC+H<sub>2</sub>O<sub>2</sub>) (n=10) received normal diet and drinking water contain 0.5% H<sub>2</sub>O<sub>2</sub> daily to induce oxidative stress and injected daily with NAC 150 mg. /kg body weight (i. p.) for 4 weeks. Blood samples were collected from all the animals groups for testing the antioxidant enzymes (Catalase and Glutathione peroxidase) and blood glucose level. The body weights were checked. At end of the experiment the animals were anaesthetized. The salivary glands were dissected for histologic investigation. **Results:** Showed a significant reduction in levels of both Catalase and Glutathione peroxidase enzymes and a significant increase in the blood glucose level at p ≤0.05, and a severe degeneration in salivary glands tissue for the H<sub>2</sub>O<sub>2</sub> Treated Group compared to the Negative Control Group, NAC Group and Protected Group (NAC+H<sub>2</sub>O<sub>2</sub>) which show no significant changes. **Conclusion:** This study indicates the prophylactic and protective roles of NAC against H<sub>2</sub>O<sub>2</sub> induced oxidative stress deteriorating effect on salivary glands tissue, antioxidant enzymes, and blood glucose level in male albino rats.

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<input type="checkbox"/>	66	Histological and Molecular Study of N-acetyl Cysteine's Effects on Salivary Glands in Fructose-Induced Metabolic Syndrome in Albino Rats	Yahya, A.Z., Taqa, G.A., Alkataan, M.A.	2023	Egyptian Journal of Histology 46(3), pp. 1272-1281	0
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Introduction: A diet high in fructose can result in metabolic syndrome (MetS). MetS is caused by a combination of hereditary and acquired variables that induce oxidative stress, cellular malfunction, and systemic inflammation. N-acetylcysteine (NAC) is the gold standard for treating paracetamol toxicity . Additionally, NAC became the ideal of a "antioxidant" throughout time. The majority of researchers use and evaluate NAC with the hope of preventing or alleviating oxidative stress. Aim of the Work: To evaluate the possible ameliorating effects of NAC on the salivary glands of fructose-induced MetS in rats.

Materials and Methods: Forty male albino rats, 10–12 weeks old, were randomly divided into five equal groups. Group I (negative control) received tap water for 12 weeks. Group II (positive control) received 60%w/w fructose syrup instead of tap water for 12 weeks. Group III (NAC) received tap water and (IP) injection of NAC (150 mg/kg/day) for 12 weeks. Group IV (protection) took 60%FS by mouth along with an NAC injection (150 mg/kg/day) for 12 weeks. Group V (treatment) received 60%FS for 8 weeks, followed by 4 weeks of drinking tap water with NAC IP injection (150 mg/kg /day). Rats were euthanized at the end of the 12 weeks. Salivary glands were dissected and examined histologically and for mitochondrial DNA copy number (mtDNA-CN).

Results: Histologically, group II exhibited eosinophilia, atrophy and necrosis. Group III displayed a normal architectural picture. In group IV, there was a normal architectural picture with mild epithelial degeneration. In group V, most tubules returned to their glandular appearance, but there was still eosinophilia and some degeneration and necrosis. Molecularly, in group II, there was a significant decline in mtDNA-CN. Group III showed the highest mtDNA-CN among all groups. In group IV, a significant increase in mtDNA-CN was observed, but less than in group III. Group V also showed a significant increase, but less than group IV.

Conclusion: High fructose diets induce MetS and are proven to harm the salivary glands. NAC, on the other hand, has been shown to alleviate MetS and protect and cure salivary glands from MetS's deleterious effects in a time-dependent manner.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 67	Inflammatory Bowel Disease (IBD) in Mosul Hospital: A cross-Sectional Study - Analysis of Prevalence, Risk Factors, and Clinical Outcomes <i>Open Access</i>	Mahmood, H.J., Hashim, A.M., Mohammed Salih, A.M., Ibrahim, R.H., Al Mushhdany, O.I.	2023	Malaysian Journal of Medicine and Health Sciences 19(5), pp. 190-195	0

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Introduction: This study aimed to investigate the prevalence, risk factors, and clinical outcomes of Inflammatory Bowel Disease (IBD) in Mosul Hospital, Iraq, in 2022. Methods: A cross-sectional study design was used to collect data from patients diagnosed with IBD in Mosul Hospital. A questionnaire was used to collect demographic and clinical data, including risk factors, symptoms, and treatment outcomes. Data were analyzed using descriptive statistics and logistic regression. Results: The study included 150 participants, with a mean age of (42.5. ± years and 56% being male. Women were found to be less likely to know the type of Crohn's disease compared to men. 58.7% of participants did not have any other diseases, while 41.3% had multiple diseases. The CH type was known for 56.8% of participants, and the average disease duration was 70.41 months, ranging from 2 to 360 months. Most participants (72.1%) did not have involvement in a particular place, while 27.9% did. All participants had known involvement. 81.8% of participants did not use drugs, while 18.2% did, with partial or unknown drug usage reported in 39 individuals. Only 7.8% of participants had IBD in their family, while 92.2% did not. Most participants (95.2%) were smokers. Conclusion: The study highlights the need for increased awareness and early detection of IBD in Mosul Hospital. The identification of risk factors and symptoms can aid in the diagnosis and management of the disease. Further research is necessary to understand the underlying causes of IBD and to develop effective prevention and treatment strategies.

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Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 68 Cancer Research in Vulnerable Populations: A Call for Collaboration and Sustainability From MENAT Countries <i>Open Access</i>	Tolba, M., Skelton, M., Abdul Sater, Z., (...), Sullivan, R., Mula-Hussain, L.	2023	JCO global oncology 9, pp. e2300201	0

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**PURPOSE:** Cancer is a major burden across Middle East, North Africa, Türkiye (MENAT). Many MENAT countries experience multiple conflicts that compound vulnerabilities, but little research investigates the linkages between vulnerability and cancer research. This study examines the current level and the potential for cancer research among vulnerable populations in the MENAT region, aiming to provide direction toward developing a research agenda on the region's vulnerable populations. **METHODS:** Expert-driven meetings were arranged among the 10 authors. After obtaining institutional review board approval, a self-administered online survey questionnaire was circulated to more than 500 cancer practitioners working in 22 MENAT countries. **RESULTS:** Two hundred sixteen cancer practitioners across the MENAT region responded. Fifty percent of the respondents identified clinical research in vulnerable patients with cancer as a significant issue; 21.8% reported previous research experience that included vulnerable populations, and 60% reported encountering vulnerable populations in their daily clinical practice. The main barriers to conducting research were lack of funding (60%), protected time (42%), and research training (35%). More than half of the respondents believed that wars/conflicts constituted an important source of vulnerability. The most vulnerable cancer populations were the elderly, palliative/terminally ill, those with concomitant mental health-related issues, those with other chronic illnesses, and socioeconomically deprived patients. **CONCLUSION:** Results support that a major effort is needed to improve cancer research among vulnerable cancer populations in the MENAT region. We call for interdisciplinary research that accounts for the region's unique, compounding, and cumulative forms of vulnerability. This cancer research agenda on different vulnerable populations must balance sociobehavioral studies that explore sociopolitical barriers to quality care and clinical studies that gauge and refine treatment protocols. Building a research agenda through collaboration and solidarity with international partners is prime time.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 69	Inflammatory Bowel Disease (IBD) in Mosul Hospital: A cross- Sectional Study - Analysis of Prevalence, Risk Factors, and Clinical Outcomes	Mahmood, H.J., Hashim, A.M., Salih, A.M.M., Ibrahim, R.H., Al Mushhdany, O.I.	2023	Malaysian Journal of Medicine and Health Sciences 19(5), pp. 190-195	0

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Introduction: This study aimed to investigate the prevalence, risk factors, and clinical outcomes of Inflammatory Bowel Disease (IBD) in Mosul Hospital, Iraq, in 2022. Methods: A cross-sectional study design was used to collect data from patients diagnosed with IBD in Mosul Hospital. A questionnaire was used to collect demographic and clinical data, including risk factors, symptoms, and treatment outcomes. Data were analyzed using descriptive statistics and logistic regression. Results: The study included 150 participants, with a mean age of (42.5. ± years and 56% being male. Women were found to be less likely to know the type of Crohn's disease compared to men. 58.7% of participants did not have any other diseases, while 41.3% had multiple diseases. The CH type was known for 56.8% of participants, and the average disease duration was 70.41 months, ranging from 2 to 360 months. Most participants (72.1%) did not have involvement in a particular place, while 27.9% did. All participants had known involvement. 81.8% of participants did not use drugs, while 18.2% did, with partial or unknown drug usage reported in 39 individuals. Only 7.8% of participants had IBD in their family, while 92.2% did not. Most participants (95.2%) were smokers. Conclusion: The study highlights the need for increased awareness and early detection of IBD in Mosul Hospital. The identification of risk factors and symptoms can aid in the diagnosis and management of the disease. Further research is necessary to understand the underlying causes of IBD and to develop effective prevention and treatment strategies.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 70	Review and Performance Analysis of Nonlinear Model Predictive Control-Current Prospects, Challenges and Future Directions <i>Open Access</i>	Khather, S.I., Ibrahim, M.A., Abdullah, A.I.	2023	Journal Europeen des Systemes Automatises 56(4), pp. 593-603	0

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Nonlinear model predictive control (NMPC) has been recognized as an influential control strategy for intricate dynamical systems due to its superior performance over conventional linear control systems. The complexity associated with nonlinear dynamics is a recurring issue in a multitude of engineering applications, rendering the development of nonlinear models a challenging endeavor. The construction of such models, either through correlating input and output data or applying fundamental energy conservation laws, presents considerable difficulties. The absence of an effective model suitable for fundamental nonlinear processes is a marked deficiency, one that NMPCs are poised to address. NMPCs demonstrate a pronounced advantage over linear MPCs, particularly in managing the complexities and nonlinearities inherent in various systems. They exhibit efficacy in controlling nonlinear dynamics, including input/output constraints, objective functions, and computationally demanding optimization problems integral to real-time applications in process industries, power systems, and autonomous vehicular systems. This capability has prompted extensive research into nonlinear dynamics, thereby diminishing the disparity between the analysis of linear and nonlinear MPCs. This review provides a thorough examination of NMPCs, encompassing the fundamental principle, mathematical formulation, and various algorithms associated with NMPCs. A concise overview of NMPC applications, along with the challenges they pose, is also discussed.

<input type="checkbox"/> 71	Adaptive PID Control for 8/6 Switched Reluctance Motor Drive Based on BFO <i>Open Access</i>	Ibrahim, M.A., Alsammak, A.N.B.	2023	Journal Europeen des Systemes Automatises 56(4), pp. 539-546	0
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The switched reluctance motor (SRM) has garnered considerable attention in both scholarly and industrial spheres due to its notable advantages such as the absence of rare earth materials and low manufacturing costs. However, the complexity of controlling SRMs, resulting from their nonlinear magnetization characteristics, remains a significant drawback. This paper presents a dual-pronged contribution. Firstly, it introduces a highly accurate and reliable model designed to evaluate the operational efficiency of a 4 kW 8/6 SRM. The magnetization characteristics have been optimized using the FEMM4.2 program in tandem with AutoCAD, which facilitates the selection of an optimal number of points for motor dimensions based on the finite element method. Secondly, the design of a proportional-integral-derivative (PID) controller for a nonlinear SRM is a complex task. Therefore, we have employed bacterial foraging optimization (BFO) to ascertain the optimal PID coefficients for controlling the speed of an SRM. Owing to its simplicity, ease of implementation, and high effectiveness, BFO is capable of delivering high-quality solutions, leading to a marked improvement in both transient and steady-state performances. The simulation results demonstrate that the control system approach utilizing PID-BFO exhibits the most desirable dynamic response characteristics.

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|--------------------------|----|---|--------------------|------|--------------------------------------|---|
| <input type="checkbox"/> | 72 | Characterization of Adaptive Implementation of Neuromorphic Spiking Sensory Systems On-Chip with Self-X Abilities   [Charakterisierung der adaptiven Implementierung von neuromorphen Spiking-Sensoriksystemen auf einem Chip mit Selbst-X-Fähigkeiten]<br><i>Open Access</i> | Abd, H., König, A. | 2023 | Technisches Messen 90, pp. S126-S131 | 0 |
|--------------------------|----|---|--------------------|------|--------------------------------------|---|

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Efficient interfacing with an expanding variety of sensors is necessary for sensor systems to act as the interface between an artificial system and the real world. A sensor system's accuracy, robustness, and flexibility play crucial roles in the overall application system. Drawing inspiration from the impressive computational abilities found in biological systems, this project focuses on developing a neuromorphic spiking sensory system that emulates the efficient style of biology. By replicating the efficient design of biological machines, which have outperformed conventional technology in many ways, we pursue to create a highly effective sensory system that can function with the same efficiency as biology. Our neuromorphic spiking sensory system incorporates two levels of adaptation to address both static and dynamic variations. The first is self-adaptive, while the second is manually treated in our current design. The essential components of the adaptive neuromorphic spiking sensory system, including the synapse, neuron, adaptive coincidence detection (ACDs) and self-adaptive spike-to-rank coding (SA-SRC) in 4-bit resolution, were integrated into our chip (XFAB CMOS 0.35  $\mu\text{m}$  via EUROPRACTICE). The presented work focuses on the adaptation of the measurement approach to determine the characteristics, namely integral non-linearity (INL), differential non-linearity (DNL), of the SA-SRC on-chip and its particular information processing.

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<input type="checkbox"/>	73	Development and application of fragment-based de novo inhibitor design approaches against Plasmodium falciparum GST	Al-Qattan, M.N.M., Mordi, M.N.	2023	Journal of Molecular Modeling 29(9),281	1
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Context: Modulation of disease progression is frequently started by identifying biochemical pathway catalyzed by biomolecule that is prone to inhibition by small molecular weight ligands. Such ligands (leads) can be obtained from natural resources or synthetic libraries. However, de novo design based on fragments assembly and optimization is showing increasing success. Plasmodium falciparum parasite depends on glutathione-S-transferase (PfGST) in buffering oxidative heme as an approach to resist some antimalarials. Therefore, PfGST is considered an attractive target for drug development. In this research, fragment-based approaches were used to design molecules that can fit to glutathione (GSH) binding site (G-site) of PfGST. Methods: The involved approaches build molecules from fragments that are either isosteric to GSH sub-moieties (ligand-based) or successfully docked to GSH binding sub-pockets (structure-based). Compared to reference GST inhibitor of S-hexyl GSH, ligands with improved rigidity, synthetic accessibility, and affinity to receptor were successfully designed. The method involves joining fragments to create ligands. The ligands were then explored using molecular docking, Cartesian coordinate's optimization, and simplified free energy determination as well as MD simulation and MMPBSA calculations. Several tools were used which include OPENEYE toolkit, Open Babel, Autodock Vina, Gromacs, and SwissParam server, and molecular mechanics force field of MMFF94 for optimization and CHARMM27 for MD simulation. In addition, in-house scripts written in Matlab were used to control fragments connection and automation of the tools.

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<input type="checkbox"/>	74	A Low-Complexity Coding Scheme for NOMA <i>Open Access</i>	Abd-Alaziz, W., Jebur, B.A., Fakhrey, H., Mei, Z., Rabie, K.	2023	IEEE Systems Journal 17(3), pp. 4464-4473	3
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This work focuses on exploiting the constructive interference among different users' data waveforms to introduce new coding and decoding techniques, which are specifically designed for nonorthogonal multiple access (NOMA) systems. In this article, a structured coding scheme is devised. In essence, the proposed technique focuses on finding a relationship between the sent users' data waveforms and then uses this relationship in the decoding process at the receiving destination. It is worth pointing out that the proposed coding and decoding techniques exhibit better performance and reduced the complexity compared with the conventional uncoded NOMA. The complexity order evaluation shows that the proposed scheme attains a reduction in the required number of the floating point operations of 5 and 6,N at the second and third users, respectively, compared with that of the uncoded NOMA. Moreover, we have derived a closed-form expression for the bit error rate, which is verified using the Monte Carlo simulation. To demonstrate the practicality of the proposed system, the obtained results are compared with those of the uncoded and convolutional coding NOMA systems. Finally, the performance of the proposed system outperformed the conventional systems by an average of 5 dB in the case of two users and an average of 15 dB in the case of three users in the same work environment.

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<input type="checkbox"/>	75	A Review of Deep Learning Techniques for Lung Cancer Screening and Diagnosis Based on CT Images <i>Open Access</i>	Thanoon, M.A., Zulkifley, M.A., Mohd Zainuri, M.A.A., Abdani, S.R.	2023	Diagnostics 13(16),2617	10
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One of the most common and deadly diseases in the world is lung cancer. Only early identification of lung cancer can increase a patient's probability of survival. A frequently used modality for the screening and diagnosis of lung cancer is computed tomography (CT) imaging, which provides a detailed scan of the lung. In line with the advancement of computer-assisted systems, deep learning techniques have been extensively explored to help in interpreting the CT images for lung cancer identification. Hence, the goal of this review is to provide a detailed review of the deep learning techniques that were developed for screening and diagnosing lung cancer. This review covers an overview of deep learning (DL) techniques, the suggested DL techniques for lung cancer applications, and the novelties of the reviewed methods. This review focuses on two main methodologies of deep learning in screening and diagnosing lung cancer, which are classification and segmentation methodologies. The advantages and shortcomings of current deep learning models will also be discussed. The resultant analysis demonstrates that there is a significant potential for deep learning methods to provide precise and effective computer-assisted lung cancer screening and diagnosis using CT scans. At the end of this review, a list of potential future works regarding improving the application of deep learning is provided to spearhead the advancement of computer-assisted lung cancer diagnosis systems.

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<input type="checkbox"/>	76	Partial Discharge Features in a String of Air Bubbles Floating in Transformer Oil	Saleh, D.N., Algwari, Q.T.	2023	IEEE Transactions on Plasma Science 51(8), pp. 2117-2123	0
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Air bubbles may occur as a defect in power transformers' oil under the effect of thermal stress or the local electrical field. These bubbles are subject to exposure to a high electric field, and this will in turn cause a local partial discharge (PD). The current work presents an analysis of the characteristics of PD inside air-filled ellipsoid bubbles at atmospheric pressure under the effect of neighboring bubbles using a self-consistent 2-D model. For an isolated bubble confined between two bubbles in the direction of the external electric field, the results reveal that there is a single current pulse with a fast rise time during the PD event. The simulation results show that the PD characteristics in the central bubble of the string of bubbles differ from the single isolated bubble located at the position between the electrodes, where the PD occurs later with higher current density in the confined bubble due to the effect of the local charge in adjacent bubbles.

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<input type="checkbox"/>	77	Evaluating the practical performance of energy detector based spectrum sensing for cognitive radio	Abdallah, M.Y., Ali, D.M.	2023	AIP Conference Proceedings 2787(1),050007	0
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With wireless communication's rapid expansion, the accessible spectrum is becoming increasingly congested since the spectrum is a scarce resource and cannot be divided into infinity to accommodate each application. In addition, new wireless technologies need significant bandwidth (BW). As a result, there is a need to find a solution to such problems. Cognitive radio (CR) technology is the key to the issue of inefficient use of the spectrum. Spectrum Sensing (SS) is the key step in CR, enabling it to distinguish between spectrum states (busy or idle). This research aims to design a real-time SS system that can improve the use of the spectrum. This paper assesses the performance of the Energy Detector (EDR) technique. The first detector is an energy detector with a static threshold, while the second is an energy detector with an adaptive threshold depending on the total mean of the signal received. It is concluded that the suggested adaptive threshold method gives a better probability of detection ( $P_d$ ) than the static threshold in low SNR values. The computer simulations were performed using LabVIEW NXG, and the practical implementation was done using the X310 Universal Software Radio Peripheral (USRP) platform.

<input type="checkbox"/>	78	Multiband filtered-OFDM configured for 5G spectrum efficiency improvement	Ali, D.M., Yahya, Z.Z.	2023	AIP Conference Proceedings 2787(1),050002	0
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The multicarrier waveform is one of the physical layer components that significantly contributes to determining the performance of wireless communication systems. Advance OFDM design base filtering was adopted for the fifth generation (5G) network to boost Spectrum Efficiency (SE), interference reduction, and allow for asynchronous communication. In this paper, a Multiband Filtered-OFDM (MF-OFDM) is presented with two scenarios of spectrum fragmentation, the first is equal-sized sub-bands and the other in unequal-sized with various kinds of Window-Sinc filters to minimize on out of band emission (OOBE). Each sub-bands has been designed with different numerology, and modulation order. Simulation results of the proposed model offers 5%-6% SE higher than that in conventional OFDM for equal and unequal sized multiband, respectively, by optimizing the guard band to the minimum.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 79	Automated Glaucoma Screening and Diagnosis Based on Retinal Fundus Images Using Deep Learning Approaches: A Comprehensive Review <i>Open Access</i>	Zedan, M.J.M., Zulkifley, M.A., Ibrahim, A.A., (...), Kamari, N.A.M., Abdani, S.R.	2023	Diagnostics 13(13),2180	12

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Glaucoma is a chronic eye disease that may lead to permanent vision loss if it is not diagnosed and treated at an early stage. The disease originates from an irregular behavior in the drainage flow of the eye that eventually leads to an increase in intraocular pressure, which in the severe stage of the disease deteriorates the optic nerve head and leads to vision loss. Medical follow-ups to observe the retinal area are needed periodically by ophthalmologists, who require an extensive degree of skill and experience to interpret the results appropriately. To improve on this issue, algorithms based on deep learning techniques have been designed to screen and diagnose glaucoma based on retinal fundus image input and to analyze images of the optic nerve and retinal structures. Therefore, the objective of this paper is to provide a systematic analysis of 52 state-of-the-art relevant studies on the screening and diagnosis of glaucoma, which include a particular dataset used in the development of the algorithms, performance metrics, and modalities employed in each article. Furthermore, this review analyzes and evaluates the used methods and compares their strengths and weaknesses in an organized manner. It also explored a wide range of diagnostic procedures, such as image pre-processing, localization, classification, and segmentation. In conclusion, automated glaucoma diagnosis has shown considerable promise when deep learning algorithms are applied. Such algorithms could increase the accuracy and efficiency of glaucoma diagnosis in a better and faster manner.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 80	Detecting man-in-the-middle attacks via hybrid quantum-classical protocol in software-defined networks <i>Open Access</i>	Jawad, T.A., Mahmood, A.N., Hameed, A.N.	2023	Indonesian Journal of Electrical Engineering and Computer Science 31(1), pp. 205-211	0

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Man-in-the-middle (MitM) attacks became one of the most risk attacks on OpenFlow communication channel in software-defined networking, its detection is a very hard task due there is no authentication in OpenFlow protocol. This channel is the most important in the network and is responsible for sending the control commands from the controller to the switches, so once the OpenFlow channel is hacked, the entire network is controlled by the attacker. Therefore, we propose a complementary solution to transport layer security protocol to detect man-in-the-middle attacks based on hybrid quantum-classical protocol. Based on the hybrid protocol, an easy-to-implement authentication between controller and switches depends on quantum and classical security layers. Also, detect eavesdropping on channel depending on quantum parameters. In this paper, we implement a simulation of hybrid protocol using a software-defined networking emulator for monitoring the OpenFlow channel to detect attacks, and the results showed the ease of detecting the eavesdrop and verifying the authentication of the other party with a hybrid method to get a high level of authentication.

<input type="checkbox"/> 81	Design of Fuzzy-ACO Based Controller for Cuk Converter in Electric Vehicles <i>Open Access</i>	Ibrahim, M.A., Ibrahim, M.H., Khather, S.I.	2023	Journal Europeen des Systemes Automatisees 56(3), pp. 425-430	0
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The voltage output of an energy storage device utilized in electric vehicles (EVs) is modulated in response to the load, and the elevated voltage of the DC link poses challenges for vehicle engineers when integrating energy storage components with the traction drive system. DC-DC converters are commonly employed in electrical powertrain systems within industrial settings to facilitate the integration of various components. The Cuk converter is widely acknowledged as a viable alternative requiring thorough deliberation, including battery management systems (BMS) for EVs technology. This is because of a continuous flow of current in both the input and the output, and it has a high efficiency compared to the buck-boost topology. Additionally, there is a low ripple in the output load voltage. The present work uses an analysis, model, and control of the Cuk converter circuit using a hybrid fuzzy logic-based ant colony optimization (ACO) method. The transient response and the steady-state performance specifications are objective functions in the fuzzy controller design process. After a comprehensive evaluation of the obtained results, it was observed that the fuzzy-ACO controller successfully achieved the desired reference with reduced rise and settling time. This study implements modeling and controlling applications of the Cuk converter by utilizing the MATLAB/SIMULINK program. The proposed controller's effectiveness is demonstrated during load variations and changes in the reference voltage.

<input type="checkbox"/>	82	ACUTE TOXICITY OF COUMACINES: AN IN VIVO STUDY	Al-Shakarchi, W., Saber, Y., Merkhan, M.M., Mustafa, Y.F.	2023	Georgian Medical News 338(5), pp. 126-131	4
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The design and synthesis of new drugs are increasingly challenging in chemistry settings. The synthesis is itself lured by the properties of the product after synthesis, including solubility, hygroscopicity, intensive adverse effects, and biological inefficacy; hence, the creation of a new drug should be considered in light of the avoidance of these downside features, if any. The present study is designed to investigate the acute toxicity of newly discovered heterocyclic frameworks derived from the coumarin backbone, namely coumacine I and coumacine II. To do so, a mouse model of 25 mice was subclassified into 5 groups (5 mice control, 5 mice coumacine I 1000 mg/kg, 5 mice coumacine II 1000 mg/kg, 5 mice coumacine I 2000 mg/kg, and 5 mice coumacine II 2000 mg/kg), a single dose was given, and mice were sacrificed after 4 hours post-dose. The blood sample and tissue were collected for biochemical and histopathological studies. Serums were analyzed for the measurement of renal function and liver enzyme activity using classical biochemical methods. A high dose of either compound caused deleterious changes, as evidenced by a significant ( $p < 0.05$ ) increase in creatinine, urea, GOT, and GPT, as well as disrupting tissue quasi-equilibrium at the cellular level in both kidney and liver. To sum up, coumacine I and coumacine II are relatively safe unless otherwise used in high doses, knowing that either dose in the present study is remarkably higher than the therapeutic dose of coumarins currently in use in clinical settings.

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<input type="checkbox"/>	83	Serum ferritin status and mitochondrial function in children <i>Open Access</i>	Aljammas, E.K., Al Kataan, M.A.A., Al- Hafidh, N.M.	2023	Bangladesh Journal of Medical Science 22(2), pp. 374-378	0
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objective: Iron is the most abundant metal within the mitochondrial matrix . Ferritin reflects bodyironstores. This study aimed to assess the association between serum ferritin levels and mitochondrial function in children. Methods: Two hundred and forty-three children from four governmental primary schools in Mosul city in Iraq were randomly selected by a multistage random sampling method. Their age range was 6-12 years. Mitochondrial function tests involved measurement of serum lactate, serum pyruvate, and L-Carnitine were analyzed in all selected children along with serum ferritin. Results: Lower levels of serum ferritin weresignificantly associated with higher levels of serum lactate, serum lactate/serum pyruvate ratio. There was a significant negative correlation ( $p = 0.000, -0.296, -0.286$ ) between mean serum ferritin level and mean serum lactate, serum lactate / serum pyruvate ratio respectively. There were significant differences ( $p= 0.000$ ) in mean serum level of mitochondrial function tests (Lactate, L-Carnation, and L/P ratio) in comparing children possessing a normal level of serum ferritin versus those with a low serum ferritin level of  $< 12$  ng/ml. ROC analysis showed that when the area under the curve (AUC) was  $0.761 \pm SE 0.37$ , a cut off value  $4.79$  ng/ml of serum ferritin was significantly ( $p=0 .000$ ) associated with sensitivity of  $100\%$  and  $1$ -specificity of  $0.861$  value with presence of L: P molar ratio of  $\leq$  equal  $20$ . Conclusion: Serum ferritin  $< 12$  ng/ ml represntsmitochondrial deficient level. Serum ferritin  $< 4.79$  ng/ml was the critical value at which only  $8.6\%$  of children will have a healthy mitochondrial function.

<input type="checkbox"/>	84	MULTIPLE ANTENNA ARRAY PATTERNS RECONFIGURATION WITH COMMON EXCITATION AMPLITUDES AND OPTIMIZED PHASES	Aljaf, D.A., Mohammed, J.R.	2023	Journal of Engineering Science and Technology 18(2), pp. 1199-1208	0
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In this paper, an efficient optimization method based on the genetic algorithm with specific constraint masks is proposed to design the linear and planar antenna arrays that are capable to perform multi-functions by producing different radiation patterns with common excitation amplitudes. Unlike the conventional synthesized methods, the proposed method alters between different patterns by simply changing the phase excitations which are practically easy since they are already exist in phased arrays. The excitation amplitudes are maintained constant during the array pattern alteration. To achieve lower sidelobe levels, the pre-specified common excitation amplitudes can be chosen according to the Gaussian taper. Simulation results show that the proposed array has the capability to efficiently generate and reconfigure between sum, flat-top, cosecant-squared, and difference patterns all subject to pre-specified desired constraint masks. Furthermore, to verify the effectiveness of the proposed method, various numerical metrics have been measured and compared such as directivity, average sidelobe, taper efficiency, beam ripple, and peak sidelobe level.

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<input type="checkbox"/>	85	SIMULATION OF CONNECTING THE SMART ENERGY METERS OF THE RESIDENTIAL HOUSES TO REDUCE THE LOAD ON ELECTRICAL DISTRIBUTION TRANSFORMERS USING LORA TECHNOLOGY BASED ON IOT	Fadhil, A.A., Aljanaby, A.O.	2023	Journal of Engineering Science and Technology 18(2), pp. 1222-1236	1
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This paper outlines offer the challenges implement of the modern Low Power Wide Area Network (LPWAN) technologies to manage energy in the smart house to reduce the load on the electrical distribution transformers using Long Range (LoRa) technology. LoRa technology features are the range is Long, lower cost, low consumed energy of the network, and it can communicate to a large number of the sensor nodes with one LoRa gateway. LoRa technology transfers the data from the sensor nodes that a fixed in electric meters for smart houses like the current, voltage, and power at a bit rate low. The Adaptive Data Rate (ADR) mechanism has been activated to choose the best value of transmitted power (PT) and spreading factor (SF) for every end device to achieve success link with the LoRa gateway and reduce the consumed energy for the network. The gateway gathered all the data coming from the sensor nodes and then sent this data to a cloud server and then the applications server. In the communication of LoRa technology, the spreading factor owns the most influence on the consumed energy and coverage region. The influence of the SF on throughput and Time on Air (ToA) is highlighted, as well as the influence of the transmitted power and code rate on RSSI and collisions of packets. Simulations have been implemented by the OMNET++ program, to cover distances with a radius of 500 m, 2500m, 5km, and 10km. After assessing the network performance from the results obtained, we observed a reduction in the LoRa network's performance represented in the increment of the number of collisions and increment of the consumed energy for the 10km coverage radius region at incrementing the number of sensor nodes from 24 to 96, as well as noted lowering the values of the power of the RSSI signal when an increment of the distance between the sensor nodes and the gateway for every transmitted power. Whereas improving network performance has been observed via a reduced number of collisions by increasing the time interval of transmitting packets for wide regions. the highest throughput per day has been get at the employ of 24 sensor nodes with sf7 in the smallest coverage area, whereas the least throughput value was at the use of 96 sensor nodes with sf12 in the largest coverage region from the regions used in the simulation.

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<input type="checkbox"/>	86	EFFICIENT DESIGN AND IMPLEMENTATION OF THE REALTIME MULTI TYPES DIGITAL MODULATIONS SYSTEM BASED FPGA	Zubaidy, M.A.A.L., Qaddoori, S.L., Gadawe, N.T.	2023	Journal of Engineering Science and Technology 18(2), pp. 974-989	0
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Wherever there has been a real need for an optimum digital communications system that can switch between multiple modulation types as needed. This paper proposes a novel and optimum new design and implementation for multi types of digital modulation techniques in one compact system. A Field-Programmable Gate Array (FPGA) (Spartan 3E) development board associated with Very High-Speed Hardware Description Language (VHDL) and Xilinx ISE 14.7 was used for the hardware implementation of the proposed system. The suggested design of this system realized eleven types of modulation types with a minimum required memory size and the high flexibility of switching between the different types of digital modulation and the originality from the past works. The Lookup Table (LUT) with only 256 samples (memory array) for carrier wave generation was used with assistant digital to analog (DAC) board which was designed for this purpose to generate the analog output wave for all the above eleven types of digital modulation in real-time.

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<input type="checkbox"/>	87	An embedded and intelligent anomaly power consumption detection system based on smart metering <i>Open Access</i>	Lazim Qaddoori, S., Ali, Q.I.	2023	IET Wireless Sensor Systems 13(2), pp. 75-90	4
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User behaviour, human mistakes, and underperforming equipment contribute to wasted energy in buildings and industries. Identifying anomalous consumption power behaviour can help to reduce peak energy usage and change undesirable user behaviour. Furthermore, decreasing energy consumption in buildings is difficult because usage patterns vary from one building to the next. So, the main contribution in this manuscript is to propose a lightweight architecture for smart meter to identify abnormalities in power consumption for each building individually using machine learning (ML) models and implement on a Single Board Computer. To detect daily and periodic pattern anomalies, two models of anomaly detection based on supervised and unsupervised ML algorithms are built and trained where numerous algorithms were utilised to select the best algorithm for each model. Also, the proposed approach enables iterative procedure modifications by retraining the two anomaly detection models on data aggregator server based on the received data meter from the specific smart meter to give better power service to clients while minimising provider losses. The effectiveness and efficiency of the suggested approach have been proven through extensive analysis.

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<input type="checkbox"/>	88	Therapeutic management of diseases based on fuzzy logic system-hypertriglyceridemia as a case study <i>Open Access</i>	Othman, K.M.Z., Zeki, N.M.	2023	Telkomnika (Telecommunication Computing Electronics and Control) 21(2), pp. 314-323	1
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The support systems for assisting clinical decision highly improve the quality and efficiency of the therapeutic and diagnostic treatment in medicine. The proper implementation of such systems can emulate the reasoning of health care professionals in such a way that suggest reasonable decisions on patient treatment. The fuzzy logic system can be considered as one of the efficient techniques for converting a complex decision tree that usually facing the physician into artificial intelligent procedure embedded in a computer program. So many properties in fuzzy logic system that can facilitate the process of medical diagnosis and therapeutic management. In this paper, a system for therapeutic management of hypertriglyceridemia was efficiently realized using a fuzzy logic technique. The obtained results had shown that the proposed fuzzy logic contributes a reliable managing procedure for assisting the physicians and pharmacist in treating the hypertriglyceridemia. Many different hypertriglyceridemia treatment cases showed a perfect matching decision between the standard guidelines and that given by the proposed system.

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<input type="checkbox"/>	89	Aircraft pitch control design using LQG controller based on genetic algorithm <i>Open Access</i>	Abdulla, A.I., Mohammed, I.K.	2023	Telkomnika (Telecommunication Computing Electronics and Control) 21(2), pp. 409-417	2
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Designing a robust aircraft control system used to achieve a good tracking performance and stable dynamic behavior against working disturbances problem has attracted attention of control engineers. In this paper, a pitch angle control system for aircraft is designed utilizing linear quadratic Gaussian (LQG) optimal controller technique with a numerical tuning algorithm method in the longitudinal plane through cruising stage. Main design approach of LQG controller includes obtaining best weighting matrices values using trial and error method that consumes effort and takes more time, in addition, there is no guarantees to obtain optimum values for weighting matrices elements. In this research, genetic algorithm (GA) is used to optimize the state and control weighting matrices and determine best values for their elements. The proposed traditional and optimized LQG pitch controller schemes are implemented utilizing Matlab simulation tool and their performance are presented and compared based on transient and steady state performance parameters. The simulation results reveal the ability of the optimized GA\_LQG controller to reject the effect of the noises in the aircraft system dynamic and achieve a good and stable tracking performance compared with that of the conventional LQG pitch control system.

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<input type="checkbox"/>	90	Prevalence, clinical and angiography of Coronary Artery Disease in patients with chest pain with left bundle branch block in Iraqi Centers of Heart Disease <i>Open Access</i>	Thanoon, A.S.- A., Saeed, A.M., Alfaqe, F.M.M.	2023	Biomedicine (India) 43(1), pp. 375-379	0
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Introduction and Aim: Left bundle branch block (LBBB), is seen on the electrocardiograms, when the His-Purkinje system disrupts the normal sequence of activation is changed in the left bundle branch block, leading to specific appearance on the electrocardiograms. Left bundle branch blocks usually occur in patients associated with advanced heart conduction disorders. In this study we aimed to study the prevalence of significant CAD in patients with chest pain and left bundle branches block sent to invasive coronary angiography and study clinical and angiography with distribution of CAD risk factors in our study population. Methodology: This investigation is a single center retrospective cohort study that included 400 patients who underwent coronary angiography with left bundle branch block on their ECGs. The study was carried out in the Iraqi Center for Heart Disease between April 2017 and May 2022. Data regarding their age, gender, related risk factors, electrocardiography, echo and left ventricular function was noted. Data was subjected to statistical analysis using the Minitab program. Results: The prevalence of CAD was 41% among the 400 patients who had LBBB. Demographic data showed age, hypertension, and diabetes mellitus to be a risk factor associated with CAD. The related anatomy of the left bundle branch block in 98 patients showed single or multiple coronary artery disease and likely reduced ejection fraction (<50%). Conclusion: The prevalence of LBBB is more common in males than in females. The biggest risk factor for cardiovascular disease in those with LBBB and coronary artery disease is hypertension, which is followed by age and diabetes mellitus. Thus, coronary angiography should be used in cardiac tests to identify CAD in individuals with LBBB.

<input type="checkbox"/>	91	Formalin Versus Bouin Solution for Rat Testicular Tissue Fixation: A Histochemical and Immunohistochemical Evaluation <i>Open Access</i>	Aziz, Z.W., Saeed, M.G., Tawfeeq, K.T.	2023	International Journal of Medical Toxicology and Forensic Medicine 13(2),E40267	0
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Background: An accurate histopathological assessment and reporting of testicular biopsies require an appropriate tissue fixative. We assessed the histological, histochemical, and immunohistochemical quality of testicular biopsies, comparing 10% formalin versus Bouin solution as tissue fixatives. Methods: This experimental study utilized 20 adult male albino rats equally divided into five cages for 30 days. By the end of the experiment, all animals were anesthetized, and both testes were removed and weighted; one testicle was fixed in 10% formalin and the other testicle in Bouin solution, offering 40 specimens and then subjected to histological, morphometric, histochemical, and immunohistochemical assessments. Results: Formalin revealed high-quality cytological details and better nuclear chromatin detail ( $P=0.03$ ). At the architectural level, the Bouin solution showed better quality details with less cytoplasmic shrinkage of seminiferous tubule germ cells ( $P=0.001$ ). Bouin's fixed tissues were more suitable for staining by trichrome methods but unsuitable when subsequent immunohistochemistry was requested. The diagnostic concordance between the Bouin solution versus formalin-fixed biopsies was 91.7%. Conclusion: This study supports that the morphology of testicular tissue fixed with Bouin solution was nearly comparable to those fixed with 10% neutral buffered formalin. However, the Bouin solution cannot substitute formalin when subsequent immunohistochemistry is considered.

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<input type="checkbox"/>	92	Nanoemulsion-based nasal in situ gel of olanzapine.	Ali, Z.H., Alkotaji, M.	2023	Journal of Excipients and Food Chemicals 14(1), pp. 3-21	0
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Oral delivery of olanzapine suffers from low oral bioavailability and there has been reports of metabolic side effects. This study aimed to prepare a nanoemulsion of olanzapine and incorporate it into an in situ gel for nasal delivery. Such nasal delivery of olanzapine could provide prolonged contact time with the nasal mucosa and a potential enhanced action with lower side effects. Several formulations of nanoemulsions were prepared and characterized through the measurements of conductivity, transmittance, pH, viscosity, hydrodynamic diameter, polydispersity index, Zeta potential, entrapment efficiency, and release profiles. In addition, a pharmacodynamics study was conducted through animal studies. The selected formulation showed excellent nanoemulsion with a size in the nanometre range, a good polydispersity index with acceptable stability as indicated by the thermodynamic stability test. The cumulative percentage of olanzapine released from the nanoemulsion showed a good release profile. Pharmacodynamics study on rats using Paw test demonstrated a very clear enhancement in the antipsychotic efficacy of olanzapine in the following order: Nanoemulsion-based in situ gel (with HPMC)>nanoemulsion-based in situ gel >nanoemulsion>solution. Interestingly, olanzapine from the nanoemulsion-based in situ gel showed comparable antipsychotic efficacy to haloperidol, when given intraperitoneally. Nanoemulsion-based nasal in situ gel is a promising drug delivery system for olanzapine for achieving a targeted delivery. However, further investigations on olanzapine accumulation in the brain after such delivery are recommended.

<input type="checkbox"/>	93	Enhancement of Ultrasound B-Mode Image Quality Using Nonlinear Filtered-Multiply-and-Sum Compounding for Improved Carotid Artery Segmentation <i>Open Access</i>	Mohamed Moubark, A., Nie, L., Mohd Zaman, M.H., (...), Alomari, Z., Freear, S.	2023	Diagnostics 13(6),1161	0
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In ultrasound B-mode imaging, the axial resolution (AR) is commonly determined by the duration or bandwidth of an excitation signal. A shorter-duration pulse will produce better resolution compared to a longer one but with compromised penetration depth. Instead of relying on the pulse duration or bandwidth to improve the AR, an alternative method termed filtered multiply and sum (FMAS) has been introduced in our previous work. For spatial-compounding, FMAS uses the autocorrelation technique as used in filtered-delay multiply and sum (FDMAS), instead of conventional averaging. FMAS enables a higher frame rate and less computational complexity than conventional plane-wave compound imaging beamformed with delay and sum (DAS) and FDMAS. Moreover, it can provide an improved contrast ratio and AR. In previous work, no explanation was given on how FMAS was able to improve the AR. Thus, in this work, we discuss in detail the theory behind the proposed FMAS algorithm and how it is able to improve the spatial resolution mainly in the axial direction. Simulations, experimental phantom measurements and in vivo studies were conducted to benchmark the performance of the proposed method. We also demonstrate how the suggested new algorithm may be used in a practical biomedical imaging application. The balloon snake active contour segmentation technique was applied to the ultrasound B-mode image of a common carotid artery produced with FMAS. The suggested method is capable of reducing the number of iterations for the snake to settle on the region-of-interest contour, accelerating the segmentation process.

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<input type="checkbox"/>	94	A Radiation-Pattern Reconfigurable Monopole Antenna with Two Parasitic Elements	Najjaw, M.S., Sayidmarie, K.H.	2023	International Journal of Microwave and Optical Technology 18(2), pp. 112-121	0
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This paper presents the design, analysis, and testing of a four states pattern reconfigurable monopole antenna intended for WLAN applications. The proposed planar monopole has two parallel parasitic elements, which are connected to the ground plane by two PIN diodes. By switching the diodes between the “ON” and “OFF” states, the function of each parasitic element can be changed from a reflector into a director. Consequently, the radiation pattern of the monopole can be reconfigured, and the direction of the main beam can be easily changed. The four states of the reconfigurable antenna can also be changed at the design stage by choosing a proper distance between the monopole and the adjacent parasitic element. The operation of the antenna is analysed, then simulated using the CST software to prove the feasibility of the proposed idea. Experimental testing of the fabricated prototype showed good agreement with the simulation results

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<input type="checkbox"/>	95	Design and performance analysis of asymmetric multilevel inverter with reduced switches based on SPWM <i>Open Access</i>	Salman, L.S., Al-Badrani, H.	2023	International Journal of Power Electronics and Drive Systems 14(1), pp. 320-326	0
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Multilevel inverters have the benefit of producing high output voltage values with little distortion. This paper deals with decreasing total harmonic distortion (THD) and providing an output voltage with various step levels switching devices. In this study, a 27-level inverter with three asymmetric H-Bridge was designed and simulated based on level shift sinusoidal pulse-width modulation and phase shift sinusoidal pulse-width modulation methods. MATLAB/Simulink has been used to create this model and test it at different types of loads. The results showed that a multilevel inverter with (PS-PWM) produces less (THD) than a multilevel with (LS-PWM), when the resistive load was used, the produced voltage and current THD in (PS-PWM) and (LS-PWM) are 3.02% and 4.30% respectively, that has resulted from the linearity between voltage and current in the resistive load. While in the case of applying an inductive load, the THD in the voltage is constant in both (PS-PWM) and (LS-PWM) methods and has the same values as the THD in a resistive load. However, the THD in the current with inductive load decreased to 2.79% in (PS-PWM) and 4.04% in (LS-PWM). Finally, these results show that the performance of the proposed power circuit with PS-PWM is better than (LS-PWM).

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|--------------------------|----|---|--|------|---|---|
| <input type="checkbox"/> | 96 | Independent directors, corporate ownership and cost of debt: Do politically connected independent directors matter? Evidence from China<br><i>Open Access</i> | Al-Delawi, A.S.,<br>Harjan, S.A.,<br>Raewf, M.B.,<br>Thabit, T.H.,<br>Jameel, A.S. | 2023 | International Journal<br>of Management and<br>Sustainability<br>12(2), pp. 84-104 | 0 |
|--------------------------|----|---|--|------|---|---|

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This research seeks to determine whether politically connected independent directors (PCIDs) have a substantial effect in lowering the cost of debt (CoD). Therefore, the research aims to explain the relationship between political ties and the cost of debt, politically connected independent directors and the cost of debt, and state ownership and the relationship of politically connected independent directors and the cost of debt. In addition, we analyze the influence of corporate ownership on the connection. To illustrate this, we empirically study panel data which was separated into two periods (2011–2012 and 2013–2014) in state-owned and non-state-owned firms (SOEs and non-SOEs). We discovered that PCIDs had a considerable and unfavorable effect on the CoD, particularly in non-SOEs. As a result of the shared resource knowledge of PCIDs in government procurement contracts, finance, and law, the CoD in non-SOEs is reduced. The findings of this research add to the existing literature by employing data from China and demonstrating the impact of PCIDs in decreasing the cost of debt, particularly for non-SOEs.

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<input type="checkbox"/>	97	Histological Evaluation of Uterus and Bone response to Hormonal Contraceptive in Rats	Ali, M.F., Mahmood, I.H., Azeez, T.A.	2023	Research Journal of Pharmacy and Technology 16(2), pp. 686-690	0
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Background: Sex hormones play an important role in uterus and bone tissue integration. Oral hormonal contraceptive pills (OCPs) were developed over 50 years ago. Aims of the study: to clarify the histological evaluation of different types of hormonal contraceptive effects on uterus, cervix, ovary, endometrium, and bone in the female albino rat. Materials and methods: The study was conducted on thirty albino rats. three groups each group 10 rats one of them considered as a control group and the other two groups considered as a treated group which taking oral hormonal contraceptive once daily for about 8 weeks and another group takes injectable hormonal contraceptive once weekly for about 8 weeks then euthanized for histological examination. Result: After 8 weeks of drug administration histological findings show significant differences in the thickness of articular cartilage, the thickness of metaphyseal plate, the thickness of trabecular bone, and thickness of endometrium between the control group and experimental group. Conclusion: The current study showed that hormonal contraceptives exhibited histological changes on the uterus and bone which can be correlated to different clinical findings.

- 98 COMPARATIVE EFFECT OF INSULIN, GLIMEPIRIDE, AND METFORMIN ON INFLAMMATORY MARKERS IN TYPE 2 DIABETES MELLITUS Alsadoon, L.H., Abdullah, K.S. 2023 Georgian Medical News 335(2), pp. 60-63 2

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Background: Insulin, glimepiride, and metformin prescribe as monotherapy or in combination to control glycemic state. The present study aimed to identify the anti-inflammatory activity of commonly used antidiabetic medications insulin, glimepiride, and metformin if any. Methods: A follow-up study of added metformin alone or with glimepiride to newly diagnosed diabetic patients and add metformin to patients treated with insulin or glimepiride monotherapy to establish the effect on the glycemic and inflammatory state. Results: There are highly significant differences in glycemic and inflammatory markers when adding metformin to newly diagnosed diabetic patients and when combined with insulin or glimepiride monotherapy. Conclusion: Metformin is associated with high anti-inflammatory action in addition to improving glycemic and lipidomics states.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	99 Rectangular and circular antennas design for Bluetooth applications <i>Open Access</i>	Alsawaf, H.A., Kanaan, A.E.	2023	Telkomnika (Telecommunication Computing Electronics and Control) 21(1), pp. 8-17	1

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The most researched and examined aspect of the communication system is the wireless connection. Without learning how to operate and use different types of antennas, your knowledge is incomplete. Microstrip patch antenna research has advanced significantly in recent years. When compared to standard antennas, microstrip patch antennas provide additional advantages and opportunities. It is of low volume, light weight, low cost, low appearance, compact and easy to manufacture. This study investigates the differences between rectangular and circular patch antennas. For Bluetooth applications, the center frequency of 2.4 GHz was chosen as the optimal resonant frequency. On a flame retardant (FR-4) epoxy substrate, the antenna dielectric constant is 4.4. Above the ground the base rises 3.6 mm. For the simulation process, high frequency simulation software (HFSS 15) is used as the program design. Antennas 1x1, 1x2, and 1x4 are designed for both circular and rectangular antennas. A comparison was made for both types of antennas and voltage standing wave ratio (VSWR), return losses, gain, directivity and half power beam width (HPBW) were found, and the feature of the rectangular antenna was shown.

<input type="checkbox"/>	100 IFT and Chebyshev-based planar array thinning for adaptive interference suppression	Agha, M.H., AL-Adwany, M.A.S., Bayat, O., Hamdoon, H.T.	2023	Journal of Computational Electronics 22(1), pp. 333-349	2
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Smart antenna arrays with adaptive nulling capability are emerging as a promising solution to suppress the interference in radar applications and wireless communications in real time. Many adaptive nulling methods have been commonly used, such as controlling amplitude or/and phase excitations of the antenna elements and controlling the position of the elements. Generally, most adaptive nulling methods demand digital beamforming to create the correlation matrix from signals that arrived to array antennas. The digital beamforming is costly and needs frequent calibration; therefore, it does not appropriate for large antenna arrays. Among adaptive nulling methods, an array thinning does not require digital beamforming. It takes advantage of the adaptive algorithm to make the element active or inactive. In this paper, an IFT and Chebyshev techniques-based random thinning is presented to suppress the interference adaptively by lowering the SLL or place nulls toward the interference direction. The proposed method works with the antenna arrays that have transmit/receive modules (TRM) with RF switches. The results show the ability of both IFT and Chebyshev techniques to suppress the interference for the small array. In addition, the results indicate the superiority of IFT technique over Chebyshev in the large arrays; it is considerably faster and more efficient (in terms of lowering the sidelobe levels and nulls formation) than the Chebyshev technique. The advantage of the proposed method is no digital beamforming is needed. Consequently, a considerable reduction in complexity, power consumption, and cost can be attained.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 101	CustodyChainGuardian: Blockchain of Custody Digital Evidence Preservation System	Salih, K.M.M., Ibrahim, N.B.	2023	2023 IEEE Asia-Pacific Conference on Geoscience, Electronics and Remote Sensing Technology: Global Challenges in Geoscience, Electronics, and Remote Sensing: Future Directions in City, Land, and Ocean Sustainable Development, AGERS 2023 pp. 168-175	0

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Digital forensic investigation is a systematic process for identifying, preserving, collecting, analyzing, and presenting digital evidence in court. Chain-of-custody (CoC) is crucial, ensuring the evidence's integrity and admissibility. Blockchain technology, with its characteristics of openness, decentralization, and immutable ledger, offers enhanced security and transparency for maintaining digital evidence during forensic investigations. This paper presents the CustodyChainGuardian (CCG) framework, a multi-layered methodology designed to ensure the integrity, authenticity, and traceability of digital evidence throughout its lifecycle. The four-layer architecture includes the Front-end Layer, Cloud Layer, Database Layer, and Blockchain Layer. The Front-end Layer provides a user-friendly interface for evidence submission and management, while the Cloud Layer offers robust storage and backup capabilities. The Database Layer stores original digital evidence with unique identifiers and strict access control. The Blockchain Layer introduces immutability and transparency to the chain-of-custody. Rigorous experimentation validates the system's effectiveness and reliability.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	102 Multiuser Beamforming System with Massive MIMO-NOMA over mmWave Channel	Saleh, A.A., Ahmed, M.A.	2023	2023 1st International Conference on Advanced Engineering and Technologies, ICONNIC 2023 - Proceeding pp. 269-274	0

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In this paper, massive multiple-input multiple-out (mMIMO) with non-orthogonal multiple access (NOMA) is considered to serve multiple users wirelessly over millimeter wave (mmWave) channels. A base station (BS) with tens of antennas is proposed to provide services to users in the coverage area by applying zero-forcing (ZF) and maximum ratio transmission (MRT) beamforming techniques. The BS first divides the area into clusters that contain only two users via applying a pairing algorithm, then NOMA is applied to the two users by providing different power allocation factors for satisfying user fairness, and depending on users' circumstances. The achievable throughput for each user in the cluster along with the sum-rate provided by the BS are analyzed and evaluated for the two beamforming mechanisms. The results are obtained for different numbers of BS antennas over different combinations of power allocation coefficients. The simulation results reveal the improvement obtained by increasing the antennas in the BS. Additionally, the two beamforming methods introduce similar throughput when the same parameters are considered, with slight outperforming of MRT in the outage portability.

<input type="checkbox"/>	103 Identifying the Effect of Vitamin D on the HbA1c in Patients of Type 2 Diabetes Mellitus in Mosul City <i>Open Access</i>	Adil Mohammad, A., Zaki Bakr, O., Daood, I.I.	2023	Medical Journal of Babylon 20(Supplement 1), pp. S1-S5	0
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Background: Diabetes mellitus causes metabolic disturbances and defectiveness in most tissues and cells of the body, especially in the nerves, blood vessels, eyes, kidneys, and other body tissues. It is known that type 2 diabetes mellitus is one of the most prevalent diseases in the city of Mosul, due to several reasons, such as excessive carbohydrate intake, psychological disorders, obesity, and lack of exercise. Because of these and other reasons, there was a need to conduct scientific research to clarify the main reasons for diabetes, modify the method of treatment and change the lifestyle to avoid falling into these chronic diseases. Objective: Studying the effect of vitamin D deficiency on patients with type 2 diabetes mellitus for the population of Mosul city for the purpose of modifying the metabolism in the body. Materials and Methods: Fifty eight study subjects were collected from patients with type 2 diabetes mellitus (diagnosed by a specialist and HbA1c test results) with 20 control samples of approximately the same ages and body mass index. Thereafter, We have investigate the durations of improving vitamin D for more than one year and record all medical history of the patients. Eleven study subjects were excluded due to drug interactions. Forty nine subjects of a study comprised 33 females and 16 males who were included in the study after making sure that they did not take medication. None of them were pregnant or breastfeeding. Their mean age was ( $51.8 \pm 0.2$  years) and their mean BMI was ( $26.8 \pm 0.5$ ). The examination was carried out using immunofluorescence and dry chemistry using the I CHROMA TM II device with the materials of the device, which were provided by the manufacturer with all the materials for calibration and quality control. Results: Forty nine study subjects were examined by HbA1c and vitamin D level by immunofluorescence technique, and the mean results were ( $9.3 \pm 0.1\%$ ) for HbA1c and ( $14.3 \pm 1$  ng/ mL) for vitamin D. After treatment with vitamin D for 1 month. The results showed a good improvement in the results of the HbA1c examination, as their average results were ( $7.1 \pm 0.1\%$ ), with an improvement in the results of the vitamin D examination by ( $48.8 \pm 1$  ng/mL). Conclusions: There was a clear improvement in the level of sugar in the blood of patients with type 2 diabetes mellitus after treatment with vitamin D and an improvement in its level in the blood.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 104	Design and Simulation of an Affordable Vehicle Speed Detection System	Thabet, H.T.H., Al-Hilali, A.A., Al-Safi, M.G.S., Thabit, T.H., Mahmood, F.M.	2023	Proceedings: ICMERALDA 2023 - International Conference on Modeling and E- Information Research, Artificial Learning and Digital Applications pp. 260-265	0

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The objective of this paper is to detect the over speed of vehicles on the roads. Although maximum speed limit signs exist on the roads, many accidents keep on because of high-speed driving. It is necessary to solve these problems through automation techniques. This paper describes a speed detection system for vehicles, the traffic police can easily check the speed of vehicles by using this system. This system consists of a PLC (Programmable Logic Controller) LOGO! V8.3, two Laser sensors, an HMI (Human Machine Interface), a speed camera, and a LOGO! CMR (Communication Module Radio). The detected speed is displayed on the HMI display, moreover, if a vehicle crosses the limited speed, this system displays the over-speed on HMI, and the speed camera is activated to capture an image of that vehicle. Also, an SMS (Short Messages Service) will be sent by the CMR to the traffic authority informing them about the violation to take the necessary legal actions. The system can also store the collected data for documentation purposes. The authors describe a simple, affordable technique for monitoring vehicles' speeds in this paper.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 105	Characterization of the renal safety profiles of coumacines	Younis, M.A., Hamid, O.A., Dhafer, R., (...), Merkhan, M.M., Mustafa, Y.F.	2023	Pharmakeftiki 35(4), pp. 57-63	3

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The bottleneck step following the synthesis and characterization of the drug in the pharmaceutical setting is their adverse effects in the light of useful therapeutic doses. The kidney as the main clearance organ is the target for metereos of chemicals, xenobiotics, and drug metabolites. The present study aimed at characterizing the renal safety profile of newly synthesized coumarins-coumacine I and II. To do so, a mouse model was used with a total of 30 mice subclassified into 5 groups; Group 1 (Control group): given placebo vehicle IP for five consecutive days, Group 2: given Coumacine I at a dose of 250mg/kg IP, Group 3: given Coumacine I at dose 500mg/kg IP, Group 4: given Coumacine II at dose 250mg/kg IP, and Group 5: given Coumacine II at dose 500mg/kg IP, for each treated group coumacines given for five consecutive days. Blood samples were withdrawn at the end of the study from sacrificed animals and kidneys harvested for histological study. The results confirmed that serum creatinine and urea rose significantly ( $p<0.05$ ) in the high-dose group compared to the control or low-dose group. Histological study revealed that mild degenerative changes are associated with a low dose of coumacine compared to moderate or severe degeneration associated with a high dose of either coumacines. This pilot study provides promising future direction for the discovery of new medication with anticoagulant therapy with improved pharmacokinetics or additional pharmacodynamic properties.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 106	The Mediating Effect of Accounting Practices in the Relationship Between GreenTech and Carbon Emissions	Thabit, T.H., Alewi, J.J., Azeez, O.S., Safi, H.M., Raewf, M.B.	2023	Proceedings - International Conference on Smart-Green Technology in Electrical and Information Systems, ICSGTEIS pp. 98-103	0

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The aim of this study is to confirm the effect of Green Technologies (GreenTech) and Accounting Practices (AP) on Carbon Emissions (CE). However, the problem statement in this study can be formulated as how GreenTech is affected by the adoption of accounting practices to mitigate carbon emissions for the petrol industry in Iraq. The survey data was collected from accountants working in four foreign companies operating in Iraq. A total of 100 valid questionnaires were completed and used for data collection. To establish both reliability and validity, as well as to evaluate the proposed hypotheses, co-measurement and structural analysis using smart-PLS technique was performed on the valid data set. The findings of this study provide important insights into the links between AP, GreenTech, and CE. AP and CE have a statistically significant association, implying that particular accounting procedures and practices used by corporations may influence their CE levels. This result has ramifications for businesses looking to lessen their environmental effect through accounting changes.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 107	The role of service convenience, e-satisfaction, and e-repurchase intention among consumer perceptions of online retailers	Jameel, A.S., Razzaq Jabr Almajidi, A., Saad, M.A., Salim Azeez, O., Thabit, T.H.	2023	2023 26th International Conference on Computer and Information Technology, ICCIT 2023	0

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This study explores the impact of convenience factors on e-customer satisfaction in online retail. Specifically, it examines the influence of access convenience, search convenience, and evaluation convenience on customer satisfaction and subsequent repurchase intentions. The study utilizes consumer perceptions of online retailers as a framework to assess the significance of these convenience factors. The study was conducted in the Iraqi context among consumers with online purchase experience from retailers; the 209 valid questionnaires were analyzed by "structural equation modeling"(SEM). The results showed that access and search convenience positively and significantly impact e-customer satisfaction, while evaluation convenience has an insignificant impact on e-customer satisfaction. However, the study indicates that e-customer satisfaction significantly affected e-repurchase intentions. This study emphasizes the importance of prioritizing access convenience and search functionalities to enhance the overall shopping experience and boost e-customer satisfaction. It also underscores the need for online retailers to continually assess and improve different convenience factors to meet the evolving needs of their customers and remain competitive in the online retail landscape.

<input type="checkbox"/> 108	The Role of Vitamins B Complex in the Management of Diabetic Peripheral Neuropathy: an Electrophysiological Study	Al-Neaimy, K.S.A., Al-Sabawi, M.I., Alabdaly, M.A.	2023	Review of Diabetic Studies 19(3), pp. 138-144	0
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Background: Diabetic neuropathy has an increasingly challenging clinician due to limited available therapeutic remedies, including vitamins, minerals, herbal remedies, and physical therapy. Aim: To evaluate the effect of vitamin B complex on diabetic peripheral neuropathy (DPNP) by assessment of nerve conductive study. Methods: Fifty diabetic patients with signs and symptoms of diabetic symmetrical peripheral neuropathy (DSPNP) enrolled in the study. A nerve conductive study (NCS) was done for all patients, according to the result of the NCS the patients were divided into 2 groups, group one include 36 patients with mild to moderate DSPNP, and group two consisted of 14 patients with severe DSPNP, both groups received vitamins B for 3 months. NCS was repeated every month of treatment for 3 successive months. Results: In a mild and moderate group there is a significant improvement in nerve conductive studies ( $p < 0.001$ ), while in severe group patients there was no such improvement. Conclusion: The present study demonstrated that vitamin B complex has a beneficial effect on mild to moderate cases of patients with DPNP.

<input type="checkbox"/>	109	Designing and Simulating a Smart Water Harvesting System Using PLC Techniques	Thabet, H.T.H., Al-Hilali, A.A., Qasim, H.B., Thabit, T.H., Mahmood, F.M.	2023	2023 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies, 3ICT 2023 pp. 169-174	0
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The presence of water in human life is crucial, and God has blessed humans much with its availability. This paper tries to reduce the amount of water that people use for washing in all aspects of daily life and instead utilize it to irrigate gardens and maintain hygienic facilities. The importance of water as a fundamental ingredient and the range of social and age groups that regularly take advantage of the washing process made it an ideal location for water waste during the washing process. This is why the authors choose this region to conduct their research. The monitoring and management of water usage during the washing process are simulated using PLC techniques.

- | Document title  | Authors  | Year | Source   | Cited by |
|---|--|------|--|----------|
| <input type="checkbox"/> 110 Design of an Integral Fuzzy Logic Controller for a Variable-Speed Wind Turbine Model<br><i>Open Access</i> | Almaged, M.,<br>Mahmood, A.,<br>Alnema, Y.H.S. | 2023 | Journal of Robotics and Control (JRC)<br>4(6), pp. 762-768 | 1        |

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—The demand for electricity is continuously growing around the world and thus the need for renewable and long-lasting sources of energy has become an essential challenge. Wind turbines are considered one of the major sources of renewable electricity generation. Therefore, there is a crucial demand for wind turbine model and control systems that are capable of precisely simulating the actual wind power systems. In this paper, an advanced fuzzy logic controller is proposed to control the speed of a wind turbine system. Initially, aero dynamical, mechanical and electrical models of two mass wind turbines models are derived. Analytical calculation of the power coefficient is adopted through a nonlinear function of six coefficients that mainly depends on pitch angle and tip speed ratio. The ultimate power output from the turbine can reach up to 50 % which is achieved at zero pitch angle with an approximately tip speed ratio of eight. This is then followed by designing a hybrid fuzzy-plus I pitch controller to regulate the speed of the wind turbine shaft. In general, fuzzy logic control strategy have the advantages over traditional control techniques especially when the system is highly non-linear and has to deal with strong disturbances such as wind turbulence. To evaluate the reliability and robustness of the controller, the response of the wind turbine system is tested under several types of disturbances including wind fluctuation, sudden disturbances on high and low speed shafts. Simulation findings reveals that the performance of fuzzy-integral control technique outweighs that of conventional fuzzy approach in terms of multiple performance evaluation indexes such as zero overshoot and steady state error, rise time and a settling time of (32.9 s) (44.7 s) respectively. The reliability and robustness of the controller is tested by applying speed and torque disturbances of 25% of their maximum ranges. Results have revealed that the controller was able to reject all disturbances efficiently with a change in pitch angle up to a maximum of 10 degrees in order to retain a constant rotor speed at 1000 rpm.

<input type="checkbox"/>	111	Exact BER Performance Analysis of an Elementary Coding Techniques for NOMA System on AWGN Channel <i>Open Access</i>	Alaziz, W.A., Abood, B., Muttasher, R.M., Fadhel, M.A., Jebur, B.A.	2023	Radioengineering 33(1), pp. 45-53	0
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Ultra-Reliable Low Latency Communication (URLLC) requirements of modern wireless communication systems have heightened the need for complexity reduction in data processing along with error detection and correction techniques. Motivated by this fact, we introduce a low-complexity coding scheme for Non-Orthogonal Multiple Access (NOMA). Furthermore, this work presents a comprehensive mathematical analysis of the proposed coded NOMA communication system and evaluates its Bit Error Rate (BER) performance in various scenarios. Our study showcases a precise match between practical and theoretical results, underlining the presented mathematical analysis precision. Moreover, we conduct a comparison between the proposed NOMA system and other coded and uncoded NOMA systems. This comparison highlights the superior performance of the proposed system, providing evidence of its potential to achieve the desired complexity reduction without compromising performance. Finally, in the same work environment, it is worth noting that the proposed system demonstrated superior performance compared to typical uncoded NOMA systems. It achieved a minimum improvement of 21 dB for the 1st user and a 17dB improvement for the 2nd and 3rd users.

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<input type="checkbox"/>	112	The effect of cannula drain in reducing edema and ecchymosis after rhinoplasty	Sulaiman, S.Y., Alnori, H., Altalibi, I., Goksel, A.	2023	Facial Plastic Surgery  Article in Press	0
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Rhinoplasty is one of the most common plastic surgery and is commonly associated with post-operative edema, ecchymosis and pain which play a role in patient dissatisfaction. In this randomized comparative study we discuss the effect of cannula drainage in the reduction of post-operative periorbital edema, ecchymosis, pain and nasal obstruction after open structural septorhinoplasty. The study was conducted at a tertiary referral center from April to November 2022. We performed internal lateral osteotomy on all patients using the lateral saw and aided by lateral osteotome. At the end of the procedure, a cannula drain is prepared and inserted in the subperiosteal tunnel on the left side only. Patients were examined on the 1st, 3rd, 7th, 14th and 21st days for periorbital edema, ecchymosis, pain and nasal obstruction, and each side is scored separately. A total of 40 patients(80 sides in total) were recruited, 22 females (55%) and 18 males (45%), all of whom were adults (18-44 years old; mean age 29 years). The most frequent age group is those under 20 years representing 35% of the sample and the males forming 33.3%. The reduction in edema and pain was statically significant in the drained sides ( $P=0.000$ ) during all the post-operative days. On the other hand, ecchymosis was lower on the drained side but statistically insignificant ( $P= > 0.29$ ). Nasal obstruction was reduced significantly only on the 7th postoperative day ( $P=0.000$ ). The postoperative morbidities associated with rhinoplasty could have important functional and psychological effects on patients. This study demonstrates that inserting a cannula in the subperiosteal tunnel for drainage in rhinoplasty yields a significant clinical and statistical decrease in post-operative periorbital edema and pain with little effect on ecchymosis and nasal obstruction.

<input type="checkbox"/>	113	Advancing Public Health Monitoring through Secure and Efficient Wearable Technology <i>Open Access</i>	Qaddoori, S.L., Fathi, I., Hammoudy, M.A., Ali, Q.I.	2023	International Journal of Safety and Security Engineering 13(6), pp. 1001-1014	0
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Public health monitoring system, which are an integral part of diseases monitoring system and policies formulation, progressively rely on complex networks to collect and analyze the data then make the public health statistics. These systems play an essential role in detecting diseases outbreaks, constraining spread directions, and formulating polices for the public health. This manuscript proposes development a continuous health monitoring system, which is designed to monitor the individual health cases in real time. Where, the system is used to securely transfer the participating individual's data to a medical server, to ease early detection of abnormal health cases. Firstly, the most important contribution of this manuscript is the recommendation to implement a continuous health monitoring system as a public health service. In order to improve the proposed system, experimental analysis are conducted to focus on improving network performance and reducing price. These analyses include assessing different network protocols and their configurations to specify the most effective and reliable method to transfer data. While the second contribution is to develop a new wearable device characterized by its lightweight design and low power consumption. This device considers as one of the basic components for the proposed system. It is provided by different sensors to monitor numerous of health conditions and is able to quickly switch between sleep and wake up modes to conserve energy. These features make the proposed device an effective tool in monitoring public health. Furthermore, this manuscript suggests a security model designed especially for wearable devices with constrain resources to meet a serious need in the age of digital information security. The suggested security model assurances the secure handling and transferring the sensitive health data, which is considered the most important demand of public health monitoring system.

<input type="checkbox"/>	114	Products Allocation to Minimize Shipping Using Jellyfish Search Optimization	Kalakech, A., Yahya, A.H.	2023	2023 IEEE 4th International Multidisciplinary Conference on Engineering Technology, IMCET 2023 pp. 237-241	0
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Along with product pricing, product allocation significantly affects the rules of supply and demand. In particular, for businesses that operate with multi-warehousing architecture in geographically remote places, the results will reveal enhanced sales revenue and a bigger number of repeat customers. Calculation errors may be quite expensive for a company because they can lead to lost customers, decreased income, and additional storage and transportation costs. Product allocation is one of the main challenges that logistics and supply are facing world wide. In this thesis, a new product allocation problem (PAP) optimization algorithm is proposed by combining a logistic chaotic map and an adjusted form of the artificial Jellyfish search optimization algorithm. The logistic chaotic map was selected for initializing the allocation population due to its simplicity in implementation and complexity in its chaotic outcomes. With some modification and addition to the state-of-art Jellyfish optimization algorithm, it was possible to use it for optimizing the generated product allocation by searching the search space for a suitable strong allocation that can minimize the cost and rise the income and by that maximize the profit. The proposed algorithm with only 100 iterations and 190 initial population was able to give an optimized allocation of 21.72% increase on the overall profit of a specific item, in general, with multiple runs of the algorithm, there was always an increase in total profit in the range between 10% and 22% which is considered as a very high increase. Comparing these results to other related state-of-the-art research in literature.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	115 New Improved Sierpinski Carpet Structures Based Thinned Planar Array to Synthesize Low Sidelobes Radiation Pattern	Abdulqader, A.J., Mohammed, J.R.	2023	Proceeding - 2023 International Conference on Radar, Antenna, Microwave, Electronics, and Telecommunications: Empowering Global Progress: Innovative Electronic and Telecommunication Solutions for a Sustainable Future, ICRAMET 2023 pp. 178-183	1

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This paper presents a methodology for generating new fractal structures characterized by its ability to reduce the number of elements in planar arrays while providing the desired beam figuration demand. The main challenges for creating fractal arrays such as the Sierpinski carpet are the high sidelobe level (SLL) as well as the large number of radiating elements in the higher growth stages. In this paper, based on the traditional Sierpinski carpet, several innovative fractal array structures are proposed which are embedded with traditional fully optimized planar arrays to reduce the computational and RF chain complexities in different growth stages and make them suitable for the application of global optimization techniques. Thus, it is possible to use the genetic algorithm (GA) to improve the excitation of elements in the proposed structures to generate the desired patterns. The method depends on generating different primitive array matrices with multiple possibilities consisting of working (ON) and non-working (OFF) elements, which is the basis for building improved planar arrays. To reduce RF complexity further, amplitude-only excitation is included in the optimization process. Computational results show that the new and improved versions of the Sierpinski carpet produce lower SLL radiation patterns with fewer radiating elements than their original counterpart in the fully optimized planar arrays.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 116	Modeling and Simulation of a Seven-Phase Induction Motor	Sultan, A.H., Al-Badrani, H.	2023	International Conference on Engineering, Science and Advanced Technology, ICESAT 2023 pp. 177-181	0

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This paper provides a generalized model of a multi-phase induction motor drive using MATLAB/Simulink. Induction motors with a stator that contain phases greater than three are defined as multiphase motors. Since they have a higher torque density are more efficient than traditional three-phase drives, and can start and operate even in the presence of a phase open fault, multiphase motor drives such as seven-phase induction motor (SPIM) have gained more attention in recent years. This paper presents mathematical modeling of SPIM using MATLAB/Simulink environment. To assess the effectiveness of the developed SPIM model, a simulation study is conducted when the motor model is energized from a seven-phase voltage source inverter. The simulation results are presented under varying load conditions. The speed change is monitored by the system's torques, and the system's response to emergency changes is observed and calculated.

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<input type="checkbox"/> 117	Design and Simulation of an Automated Production Plant and Warehouse Management System	Alnema, Y.H., Musaa, A.K., Ali, M.N., Muhammad, A.O.	2023	International Conference on Engineering, Science and Advanced Technology, ICESAT 2023 pp. 101-107	0
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This paper illustrates the implementation of a practical model that can simulate one of the applications in modern industries while also displaying the results remotely. Moreover, three steps of the automation pyramid have been achieved, starting from the field level and ending with the supervisory level (SCADA), which allows us to catch up with the fourth industrial revolution that is trending. The article can be summarized into three sections. The first one is about building a virtual automated warehouse system that utilizes a conveyor and a PLC to control the production line. The simulation of these processes has been implemented via the Factory I/O platform. It is subdivided into four subcategories: color-based sorting, material-based sorting, box size-based sorting, and packaging optimization. The Human-Machine Interface (HMI) design is also discussed, which optimizes stock requests. The second aspect of this paper focuses on practical work, specifically sorting by size. It also explores the use of pneumatic cylinders in separating boxes based on different dimensions. These cylinders are actuated through solenoid valves, which receive instructions from sensors and transmit signals to the PLC for efficient control. Finally, the Internet of Things (IoT) has a share in this project, which allows remote monitoring of the production line to increase safety and efficiency.

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<input type="checkbox"/>	118	Radar Cross-section Reduction of Planar Absorbers Using Resistive FSS Unit Cells <i>Open Access</i>	Jasim, M.B., Sayidmarie, K.H.	2023	Journal of Telecommunications and Information Technology (4), pp. 61-62	0
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This paper demonstrates the feasibility of reducing radar cross-section by employing resistive sheets or rings in the conducting elements of an FSS unit cell. The idea behind the approach in question is to create power-absorbing elements which may help reduce the power reflected from FSS surface. The investigated FSS unit cells have the form of double-closed rings and double-closed-split rings. A carbon paste, serving as the resistive layer, was inserted in various regions within the unit cell. The CST Microwave Studio software was used to obtain the reflection coefficient. Specific dimensions and conductivity of the paste were selected to ensure better performance. Simulation results showed that the reflection coefficient may be reduced by 8 dB, to 14 dB, by using carbon paste with the conventional copper layer.

<input type="checkbox"/>	119	A New Discrimination Method of Imaging Regions for Improved Ultrafast Ultrasound Imaging Performance <i>Open Access</i>	Thanoon, S.A., Alomari, Z., Al-Zubaidy, M.A.	2023	Journal of Biomedical Photonics and Engineering 9(4),040310	0
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Up to date, adaptive beamforming technologies have been successfully introduced to medical ultrasound imaging, resulting in a considerable improvement in imaging quality versus non-adaptive delay-and-sum beamformers. Minimum Variance (MV) adaptive beamforming improved resolution rather than contrast. At the same time, Eigen Space Based Minimum Variance (ESBMV) was formerly projected to enhance contrast in MV, but at the expense of the appearance of black regions around hyperechoic targets. Partial ESBMV (PESBMV) method has recently controlled the appearance of these black regions with a little reduction in the level of contrast. In this paper, a new technique of beamformer is proposed to improve the imaging quality of PESBMV. This approach uses two factors as a detection tool to adaptively indicate the regions of the image, then it applies the suitable beamforming method in each region. The results show that lateral resolution increased by 52% compared to that in PESBMV. Moreover, the contrast ratio is also increased with the preservation of the homogeneity of the background speckle. The proposed method is compared to MV, ESBMV, and PESBMV using in vitro experimental radio frequency data, showing improvement in the speckle preservation without affecting lateral resolution, and finally providing excellent image contrast performance. © 2023 Journal of Biomedical Photonics & Engineering.

<input type="checkbox"/>	120	Laser sessions with perineoplasty for increase sexual satisfaction <i>Open Access</i>	Azeez, T.A., Abdulrahman, D.M., Saeed, H.N., (...), Al-Mashhadani, O.I., Al-Rubaii, B.A.L.	2023	Reproductive Health of Woman 2023(7), pp. 49-54	0
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After vaginal delivery and improper episiotomy suturing about 40% of women complaint from wide vagina and defect in pelvic support which will lead to loss of satisfaction in sexual relationship with the partner. In recent years many different methods were used for solve the complaint for many of these ladies of wide vagina and loss of satisfaction in their sexual relationship, which was either surgical or non-surgical ways. The objective: to confirm that the fractional CO2 laser was emergency noninvasive modalities to solve problem with or without simple perineoplasty could be needed to restore pelvic support and improve sexual function of women. Materials and methods: 101 women took part in this prospective study. All women were old from 22 to 45 years. The degree of vaginal laxity severity was evaluated by vaginal examination in each patient. Perineal length, vaginal orifice length were measured and female sexual function index questionnaire was used to assess sexual satisfaction score. The women had different degree of vaginal laxity and underwent fractional CO2 laser from 2 to 3 sessions with or without simple perineoplasty and follow up them for gain vaginal tightness and improvement of their sexual function. Results. There was significant correlation between increase body mass index and parity with decrease sexual function of the women as the P values equal to 0.0001 and 0.029 consequently. Regarding the anatomical variation of the genital tract that occurs to women before and after doing the laser sessions and simple perineoplasty, our study show very significant correlation between partner satisfaction and anatomical variation were P value equal the following consequently 0.003, 0.035 and 0.57. Conclusion. The degree of vaginal laxity should be clinically evaluated and accordingly the use of only fractional CO2 laser with or without simple surgical perineoplasty to achieve vaginal tightness and improve in sexual function.

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<input type="checkbox"/>	121	The Effect of the Imaging Parameters on the Performance of Coherence Factor in Plane-Wave Imaging <i>Open Access</i>	Alomari, Z.	2023	Proceedings of the World Congress on Electrical Engineering and Computer Systems and Science ICBES 129	0
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Beamforming methods are usually presented and examined in the literature using specific imaging equipment and settings. However, the performance of any beamforming method is usually affected by imaging parameters such as the central frequency, transducer width and imaging depth. This paper shows how the weighting method of the Coherence Factor (CF) is affected by those three imaging parameters. CF is applied to DAS beamformer for Point Spread Function (PSF) imaging using Field II simulations. Results show that the amount of improvement added by CF to lateral resolution is higher at low central frequencies, transducer widths and at high penetration depths. Studies of such relations help to professionally selecting imaging equipment at various circumstances and limitations.

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<input type="checkbox"/>	122	PREDICTION OF IRON DEFICIENCY IN CHILDREN USING EASY LABORATORY TOOLS	Ibrahim, A.M., Mustafa, B.Sh., Jameel, F.A.	2023	Georgian Medical News 343(10), pp. 53-56	1
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Iron deficiency anaemia is a common condition in children that can impair growth and development. This study aimed to evaluate the utility of easy, routinely available laboratory tests in predicting iron deficiency anaemia. Medical records of 55 children (mean age  $4.9 \pm 3.2$  years) with laboratory evaluation of anaemia were analysed retrospectively. Parameters included complete blood count, serum iron, total iron binding capacity (TIBC), serum ferritin and transferrin saturation. Based on reference ranges, haemoglobin, hematocrit, serum ferritin and transferrin saturation were reduced below normal, indicating clear iron deficiency. Although within normal limits, red blood cell count, mean corpuscular volume, mean corpuscular haemoglobin and serum iron were close to lower limits, suggesting subtle deficiency. In contrast, red cell distribution width, platelet count, white blood cell count, TIBC and unsaturated iron binding capacity were unaffected. In conclusion, haemoglobin, and hematocrit from complete blood count, along with subtle changes in some of the red cell indices, can strongly suggest, iron deficiency anaemia in children, Taking into consideration the increased body demand of iron in this age group with follow-up to ensure a desirable response, with less need for more advanced iron studies. These widely available, inexpensive tests may facilitate early detection and treatment of this common pediatric condition.

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| <input type="checkbox"/> | 123 | Simulating the Barrier Heights Impact on the Performance of Dissimilar Electrodes Metal-Insulator-Metal Diode   [(Symulacja wpływu wysokości bariery na działanie różnych elektrod Metal-izolator-metalowa dioda)] | Emad, R.,<br>Algwari, Q.Th.,<br>Sabaawi,<br>A.M.A. | 2023 | Przegląd<br>Elektrotechniczny<br>2023(11), pp. 141-145 | 0 |
|--------------------------|-----|--|--|------|--|---|

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Metal-insulator-metal (MIM) tunnel diodes are desirable for applications including ultra-high frequency rectenna detectors, solar cells, and mixers due to their femtosecond-fast transmission. These applications place strict demands on the current-voltage I(V) properties of diodes. In this paper, a single insulator tunnel diode is simulated using SILVACO ATLAS software to correlate the importance of insulator interfacial stability to MIM rectification performance, which helped to analyse and develop MIM diodes with the desired properties. By keeping the Al<sub>2</sub>O<sub>3</sub> insulator layer, different metals were used as electrodes of the MIM diode to achieve the desired asymmetry. Two schemes of electrode asymmetry were proposed, the first scheme is based on using a metal that produces a constant barrier height at one side of the insulator layer and different barrier heights at the other by using different metals. The second structure implicates using different metals at the sides of the insulator to achieve different barrier heights but with constant barrier differences between the metals. A voltage range of  $\pm 0.4$  V was used to study electrical characteristics. It is found that the MIM structure with fixed barrier height at cathode side produces a good asymmetry with poor nonlinearity, while the results of fixed barrier height at anode side reveals that the figure of merit (FOM) strongly depends on the work function difference of the metals of the MIM structure. For the constant barrier differences, it is found that the smaller the barrier height the larger the current response produced and the lower the turn on voltage. The impact of insulator thickness on the diode FOM shows that the lowest thickness produces the highest asymmetry and nonlinearity.

<input type="checkbox"/>	124	Assessing the Effectiveness of Clinical Rotations in Preparing Undergraduate Nursing Students for Practice: Mixed Study <i>Open Access</i>	Yaas, M.H., Hamarash, M.Q., Almushhadany, O.I., (...), Jassim, R.S., Jassim, R.S.	2023	Malaysian Journal of Nursing 15(2), pp. 87-99	0
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**Objective:** The objective of this mixed-methods research study is to assess the effectiveness of clinical rotations in preparing undergraduate nursing students for practice at Ninevah Nursing College, Iraq by combining quantitative and qualitative approaches. **Methods:** A mixed-methods approach was used to collect data from a convenience sample (100) of undergraduate nursing students. A survey was conducted to obtain quantitative data, while qualitative data was obtained through focus groups. Descriptive and thematic analyses were employed to analyze the data. **Results:** The results revealed that clinical rotations were perceived to be valuable in developing clinical skills. However, there were gaps in the student's preparation for the emotional demands of nursing practice, navigating complicated patient interactions, and managing workload. The findings suggest a need for nursing programs to ensure that clinical rotations provide a more comprehensive preparation for the realities of nursing practice. This can be achieved through a structured approach, including debriefing sessions and opportunities for reflection, and ensuring that students have exposure to a range of patient populations and healthcare settings. **Conclusion:** Clinical rotations are essential for nursing students to apply their theoretical knowledge in a real-world setting. The study findings indicate that there is a need for nursing programs to enhance the effectiveness of clinical rotations in preparing students for the realities of nursing practice. Implementing a structured approach to clinical rotations and ensuring exposure to diverse patient populations and healthcare settings can help bridge the gaps in nursing education.

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<input type="checkbox"/>	125	Impact of the COVID-19 Pandemic on Motivation Levels Among Nursing Students at the College of Nursing, University of Mosul, Iraq <i>Open Access</i>	Abdullah, M.K., Mallaah, S., Almushhadany, O.I., Ibrahim, R.H., Jassim, R.S.	2023	Malaysian Journal of Nursing 15(2), pp. 79-86	0
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**Aims:** The objective of this study was to investigate how the COVID-19 pandemic has influenced the motivation levels of nursing students. **Design:** A descriptive study design was implemented with nursing students enrolled at the College of Nursing, University of Mosul, Iraq. **Methods:** The study included a sample of 260 students. Data collection was carried out using personal information forms and Motivation Sources and Problems Scale. An online survey method was employed to collect data between May 1st and May 31st, 2020. The collected data were analyzed using various statistical measures, including frequency, percentage, mean, standard deviation, student t-test, and ANOVA test, performed with the SPSS 25.0 program. **Results:** It was found that 79.1% (n = 125) of the students were positively affected and 52.5% (n = 83) were negatively affected. The intrinsic motivation scores of the students were  $43.55 \pm 8.71$ , extrinsic motivation scores were  $21.36 \pm 3.71$ , negative motivation scores were  $26.91 \pm 5.67$ , and total motivation scores were found to be  $92.15 \pm 12.77$ . **Conclusions:** The COVID-19 pandemic has severely affected the students' level of motivation. A good strategic plan and a comparative study between distance education and face-to-face education are recommended to increase the level of motivation among nursing students.

<input type="checkbox"/>	126	Quantum Genetic Algorithm for Highly Constrained Optimization Problems <i>Open Access</i>	Sabaawi, A.M.A., Almasaoodi, M.R., Gaily, S.E., Imre, S.	2023	Infocommunications Journal 15(3), pp. 63-71	0
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—Quantum computing appears as an alternative solution for solving computationally intractable problems. This paper presents a new constrained quantum genetic algorithm designed specifically for identifying the extreme value of a highly constrained optimization problem, where the search space size `_database` is massive and unsorted\_ cannot be handled by the currently available classical or quantum processor, called the highly constrained quantum genetic algorithm (HCQGA). To validate the efficiency of the suggested quantum method, maximizing the energy efficiency with respect to the target user bit rate of an uplink multi-cell massive multiple-input and multiple- output (MIMO) system is considered as an application. Simulation results demonstrate that the proposed HCQGA converges rapidly to the optimum solution compared with its classical benchmark.

<input type="checkbox"/>	127	Low Complexity Online RL Enabled UAV Trajectory Planning Considering Connectivity and Obstacle Avoidance Constraints	Qazzaz, M.M.H., Zaidi, S.A., McLernon, D., Salama, A., Al-Hameed, A.A.	2023	2023 IEEE International Black Sea Conference on Communications and Networking, BlackSeaCom 2023 pp. 82-89	1
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In recent years, we have witnessed a significant proliferation of UAV s to service variety of verticals, including last-mile delivery, medical assistance, crop monitoring etc. The true utility of these UAV s lies in beyond-line-of-sight (BLoS) operations which require wide-area connectivity. The increased densification of the cellular networks under 5G networks is ideally suited for this purpose. However, traditional cellular networks are not optimised for servicing aerial clients. In this paper, we propose a novel approach to improve connectivity for delivery UAV s with the ground base stations using low complexity online reinforcement learning (RL) and multiple Q-learning algorithms. We demonstrate that by training multiple Q-learning models, we can accurately predict optimal trajectory for UAV s flight. The optimality is in the sense of its shortest flight path while ensuring continuity in connectivity with the ground base station. Our modeling explicitly incorporates dynamic changes in the environment which may not be observed during the previous missions by UAV. We implement our proposed methodology using OpenAI Gym and demonstrate that the proposed approach allows perpetual connectivity for UAV s while generating obstacle-free flight trajectories.

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<input type="checkbox"/>	128	Control Robotic Hand Depending on Voice Commands and IoT <i>Open Access</i>	Abdul-Nafa, A.D., Ahmed, S.S., Ahmed, Y.S., Alsaydia, O.M.	2023	Nano Biomedicine and Engineering 15(3), pp. 288-295	0
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A need for a prosthetic hand device has arisen based on the fact that many people lose one of their upper limbs for various reasons. Many systems are available to control prosthetic hands, such as electromyography (EMG) and mechanomyography (MMG). These systems present many problems, including complexity, high cost, and other issues. Voice commands are among the solutions recommended to address these issues. The proliferation of the Internet, voice recognition technology built into mobile phones, and Internet of Things (IoT) technology has facilitated the use of voice commands to operate prosthetic devices. In this paper, robotic prosthetics were controlled using this technology in the context of five different movement classes. This study involved five participants and reports an accuracy rate of 97%.

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<input type="checkbox"/>	129	SIMD IMPLEMENTATION OF DEEP CNNs FOR MYOPIA DETECTION ON A SINGLE-BOARD COMPUTER SYSTEM <i>Open Access</i>	Al Jbaar, M.A., Dawwd, S.A.	2023	Eastern-European Journal of Enterprise Technologies 5(9(125)), pp. 98-108	0
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been rapidly developed due to their flexibility and scalability to be adopted in several fields for modeling real-world applications like object detection, image classification, etc. However, their high accuracy incurs intensive computations. Therefore, it is crucial to carefully choose a suitable computer platform and implementation methodology for CNN network architectures while achieving increased efficiency. Parallel architectures are prevalent in CNN implementation. Herein, we present a new Single Instruction Multi Data (SIMD) parallel implementation of the proposed CNN to speed up the execution process and make it suitable to deploy on low-cost, low-power consumption platforms. The proposed implementation produces an improved model of deep CNN executable on a cost-efficient platform and portability to work autonomously with multi-core processing units while maintaining working accuracy. Raspberry Pi 3 B is a low-power target device for implementing our model. The proposed approach is characterized by high diagnostic accuracy of up to 96.35 % while incurring power consumption of 3.65 Watts, achieving power reduction between 19.17 % and 68.45 % compared to the prior work. Meanwhile, it has a fine inference time for the selected platform. The outstanding results of this study reflect the success of employing parallel architectures to utilize the quad courses of the ARM processor on the target platform. The presented model can be an efficient medical assistant to provide automated detection and diagnosis for myopia ocular disease. Thus, it can be a promising healthcare toolkit that reduces the effort of the medical staff and increases the quality of the provided medical services for myopia patients

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<input type="checkbox"/>	130	Two-level Alignment-based Unsupervised Domain Adaptation for Semantic Segmentation of Remote Sensing Images	Ismael, S.F., Kayabol, K., Aptoula, E.	2023	2023 Innovations in Intelligent Systems and Applications Conference, ASYU 2023	0
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Semantic segmentation is an essential analysis task for understanding remote sensing images. Recently, many supervised semantic segmentation models have achieved high performance. However, this performance tends to decline when there is a distribution shift between the source and target domains, such as a change in the geographical area or sensor mode. One solution to overcome this issue is to use unsupervised domain adaptation, which transfers the grasp of a model trained on a source domain with accessible labels to the target data domain without label access. This paper proposes a new unsupervised domain adaptation method for remote sensing images. The proposed approach leverages a combination of Fourier transform-based image-to-image translation to diminish the shift in the input-level space and the fine-grained domain discriminator to address the shift in the class-based feature-level space. The experimental results demonstrate that our proposed method effectively improves the performance of cross-domain remote sensing semantic segmentation tasks.

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<input type="checkbox"/>	131	Perceived Trust of Stakeholders: Predicting the Use of COBIT 2019 to Reduce Information Asymmetry	Thabit, T.H., Abdullah, S.H.	2023	2023 3rd International Conference on Emerging Smart Technologies and Applications, eSmarTA 2023	2
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The objective of this study is to ascertain the impact of perceived trust and COBIT on information asymmetry. However, the problem statement of this study could be framed as how the trust of stakeholders was influenced by the adoption of COBIT 2019 to mitigate IA within the context of Iraq. Survey data were collected from stakeholders of the Commercial Bank of Iraq (CBIQ) who possessed knowledge about COBIT 2019. A total of 122 valid questionnaires were completed and utilized for data collection. To establish both reliability and validity, as well as to assess the proposed hypotheses, a combined measurement and structural analysis were conducted using the smart-PLS technique on the valid dataset. The findings reveal that the adoption of COBIT 2019 to mitigate information asymmetry (IA) exerts a positive and significant influence on perceived trust (PT). Trust did not significantly affect IA, whereas IA was negatively affected by the implementation of COBIT. In addition to providing bank stakeholders with a comprehensive understanding of the factors influencing IA, this research can aid them in making informed judgments regarding the assessment of accounting information quality.

<input type="checkbox"/>	132	Using Hybrid GA/PSO-Mobile Sink to Improve Energy Efficiency and Network Lifetime for LEACH Protocol in WSNs	Saadallah, N.R., Alabady, S.A.	2023	ICSET 2023 - 2023 IEEE 13th International Conference on System Engineering and Technology, Proceeding pp. 250-255	0
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Utilising a hybrid Genetic Algorithm (GA) and Particle Swarm Optimisation (PSO) strategy in conjunction with a mobile sink, this study proposes a new approach for improving energy efficiency and extending the network lifetime in Wireless Sensor Networks (WSNs). This work is founded on the Low-Energy Adaptive Clustering Hierarchy (LEACH) protocol. The conventional use of static sink nodes frequently results in an energy imbalance among sensor nodes, especially those close to the sink, leading to the premature exhaustion of their energy reserves. To combat this difficulty, a mobile sink framework is proposed, accompanied by a hybrid optimization strategy. Utilizing the Genetic Algorithm (GA), the optimal Cluster Heads (CHs) for the mobile sink's trajectory are determined. If the optimal path cannot be determined, the PSO phase selects Collector Points for the mobile sink. Afterward, the optimal route between these sites is computed, and the superior route is selected for the ongoing cycle. The proposed hybrid GA/PSO-mobile sink strategy is contrasted to conventional WSN protocols through extensive simulation and performance evaluation. The results demonstrate significant improvements in energy efficiency and network lifetime, validating the approach's efficacy in extending the operational lifetime of WSNs under the LEACH protocol while maintaining efficient data aggregation and communication.

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<input type="checkbox"/>	133	Adaptive Cruise Control of A Simscape Driveline Vehicle Model Using Fuzzy Logic Controller <i>Open Access</i>	Mahmood, A., Almaged, M., Alnema, Y.H.S., Noaman, M.N.	2023	Journal Europeen des Systemes Automatisees 56(5), pp. 743-749	0
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This paper shows the modelling and implementation of an adaptive cruise control (ACC) system for intelligent vehicles using fuzzy logic control approach. Initially, MATLAB Simulink is utilized to design an advanced vehicle model that takes into account most of the vehicle parameters using Simscape Driveline toolkit. Then, the fuzzy logic toolbox in MATLAB Simulink is introduced for designing and simulation of the fuzzy logic system. The proposed ACC algorithm functions in two different modes, the distance and velocity modes, based on the speed of the moving vehicle and the vehicle ahead. In distance control mode, the vehicle measures the actual distance to the vehicle ahead and compares it to the safe distance. If the measured distance is larger than the safe distance, the setpoint will be the safe distance and the system will work on maintaining the actual distance equal or greater than the safe distance. However, in speed control mode, the controller will operate according to the set speed adjusted by the driver given that the safe distance condition is met. This gives the vehicle the ability to make decisions relaying on both the set speed by the driver and the actual distance to the upfront objects. It is worth to mention that only a single controller is employed for both modes. According to MATLAB simulations, it is proven that the designed ACC algorithm using fuzzy logic controller is capable of retaining the vehicle in desired constraints as well as achieving satisfactory results owing to the simplicity of the proposed approach. The findings further demonstrate that the system have actually no overshoot with absolutely null steady state error while responding to the given speed with quite swift rising and settling times. However, there happen to be some rapid fluctuations in the throttle and brake values especially when the actual distance suddenly drops below the desired safe distance which may cause some driving inconvenience to the passengers.

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<input type="checkbox"/>	134	Smart Healthcare: Emerging Technologies, Applications, Challenges, and Future Research Directions ( Book Chapter)	Alghareb, F.S., Hasan, B.T.	2023	<i>Smart Cities: IoT Technologies, Big Data Solutions, Cloud Platforms, and Cybersecurity Techniques</i> pp. 112-157	0
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[No abstract available]

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<input type="checkbox"/>	135	Vowels' Articulatory Location Classification based on Formant Frequency	Abdulaziz, A.S., Dawood, A.	2023	2023 International Conference on Decision Aid Sciences and Applications, DASA 2023 pp. 12-16	0
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Modelling vowels is a crucial step in many applications such as speech understanding, human age analysis, accents differentiation, security and E-learning. This paper proposes building a statistical model for the US English vowels based on formant frequencies, which are extracted from real speech samples. Vowels are classified according to their articulatory-acoustic characteristics into front and back vowels. Three different approaches have been tested in this research, the K-means clustering, Fisher's linear discriminant analysis (LDA) and non-linear Gaussian mixture model (GMM). The proposed GMM model is used to classify vowels with the help of the Expectation Maximization (EM) algorithm. The results show that K-means analysis did not produce a convenient classification of vowel formants. Meanwhile, the automatic perception is highly achievable when formant data are projected on different coordinates using Fisher's LDA (FLDA). The classification error in the FLDA is close to that of the quadratic discriminant function of the EM algorithm. Although EM algorithm that was based on GMM gave better classification when it was tested, Fisher's LDA gave nearly the same results with significantly less computations.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 136	A Focused Circular Array with Variable Focal Length <i>Open Access</i>	Sayidmarie, K.H., Mohammad Fwzi, M.Z.	2023	Progress In Electromagnetics Research M 121, pp. 63-72	0

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Focused arrays are attracting increased interest because of their wide range of applications. Focusing the antenna's radiation in the near field requires proper phase distribution of the array elements that must be fed through many phase shifters. This work presents a design idea for a focused circular array antenna, whose focal distance can be varied by only a single variable phase shifter. The idea is implemented on a dual ring circular array having a six-wavelength diameter and focused at five wavelengths by using a single fixed phase shifter. Theoretical analysis and computer simulations of a sample design using MATLAB and CST Microwave Studio show that a phase change of  $0.9\pi$  leads to a four wavelength change in the focal distance. A formula for the estimation of the depth of field DOF is derived. The proposed array offers a simple method to vary the focal length continuously by a single variable phase shifter. This idea can be utilized in hyperthermia, RFID, and imaging applications, where the position of the focal spot needs to be moved along the normal to the array.

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<input type="checkbox"/> 137	The impact of juvenile hypothyroidism on stature <i>Open Access</i>	Al-Omari, A.F., Omer, Z.K.	2023	Journal of Medicine and Life 16(8), pp. 1211-1214	0
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Short stature with different alterations in the skeletal appearance usually results from juvenile hypothyroidism. The present case-control study was conducted to assess the effect of thyroid hormone deficiency on the height of young people and the prevalence of short stature in juvenile hypothyroidism. The research was conducted at the Al-Waffa Diabetic Centre between May and September 2022. The study group included 90 children with short stature, while the control group included 58 children. The statistical analysis was conducted using Minitab version 20. The results revealed that a low serum level of triiodothyronine (T3) was present in 2.2% of participants, while a low serum level of thyroxin (T4) was present in 36.7%. All subjects had elevated serum thyroid stimulating hormone (TSH). Female children had increased rates of short stature. Juvenile hypothyroidism results in various skeletal manifestations, including reduced height. Low serum thyroxin coupled with high serum thyroid stimulating hormone are common findings in juvenile hypothyroidism.

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<input type="checkbox"/>	138	Synthesizing Non-Uniformly Excited Antenna Arrays Using Tiled Subarray Blocks <i>Open Access</i>	Mohammed, J.R.	2023	Journal of Telecommunications and Information Technology 4, pp. 25-29	0
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Conventionally, non-uniformly excited antenna arrays are synthesized by independently determining the excitation amplitude and phase of each single element. Such an approach is considered to be the most expensive and complex design method available. In this paper, the tiling technique is harnessed to synthesize non-uniformly excited antenna arrays. To apply this technique, the array elements are first divided into different subarray shapes, such as rectangles or squares known as tiles. The use of rectangular tile blocks instead of a single element architecture greatly simplifies the array design process and reduces array complexity. Next, the problem concerned with synthesizing sub-arrays comprising rectangular tile blocks is formulated and solved by using horizontal and vertical orientations of tiles having different shapes and sizes, and their larger integer expansions. The third approach to tiled design is a mixture of both previous tile architectures. A genetic algorithm is used to design such tiled arrays offering optimum sidelobe levels, beam width, directivity and taper efficiency. Simulation results demonstrated the effectiveness of the proposed tiled arrays.

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<input type="checkbox"/>	139	Different 2D and 3D mask constraints synthesis for large array pattern shaping <i>Open Access</i>	Abdulqader, A.J.	2023	International Journal of Microwave and Wireless Technologies  Article in Press	0
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In this article, different 2D and 3D mask styles for synthesizing large array pattern shaping to meet the requirements of modern applications are realized. The composition of the different beam pattern shaping is achieved by comparing the array factor with the proposed masks whose details (upper and lower borders) are predefined according to the designer. The generated pattern shapes are as follows: unscanned 2D single-pencil beam, scanned 2D pencil beam, 2D multi-beam scanning, 2D wide flat beam with little ripple, unscanned 3D single-pencil beam, 3D multi-beam scanning, and footprint (or contour) pattern for linear and planar arrays. The process of constructing these patterns is followed by predicting the amplitude-only weights (i.e., the phase weighting is considered zero in all computations) of the elements using the particle swarm optimization algorithm. In all proposed masks, different sidelobe levels are controlled, ranging from -20 to -100 dB. Also, the radiated beamwidth is controlled, ranging from 0.1334 rad (7.6 deg.) to 0.4 rad (23 deg.). The analysis and construction of linear and planar array arrangements depend on the formulation of antenna array theory through the implementation of the proposed (estimated) equations using MATLAB code. The simulation results showed the effectiveness of the proposed methods in controlling the pattern shape according to the required modern trends.

<input type="checkbox"/>	140	Design and simulation of high efficiency rectangular microstrip patch antenna using artificial intelligence for 6G era <i>Open Access</i>	Ayoob, S.A., Alsharbaty, F.S., Hammodat, A.N.	2023	Telkomnika (Telecommunication Computing Electronics and Control) 21(6), pp. 1234-1245	0
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Hide abstract  [Locate full text](#) [Related documents](#)

Sixth-generation (6G) applications require ultra-speed and large-capacity wireless communication services. Millimeter wave technology can be used to satisfy these requirements, especially at 28 GHz. This paper study used the Ansys® high-frequency structure simulator (HFSS) to design and simulate rectangular and slotted rectangular microstrip patch antennas (MSPAs) at 28 GHz. The proposed designs contained a Rogers RT/Duroid® 5,880 substrate with a dielectric constant ( $\epsilon_r$ ) of 2.2 and a loss tangent of 0.0009. The performance of both the proposed antennas was compared to determine which was more efficient. This present study also used an adaptive network-based fuzzy inference system (ANFIS) to determine the optimal frequency and gain. The main objective of the manuscript is to use artificial intelligence (AI) to obtain the best design results for MSPA. The results indicated, with the use of AI, the gain of the rectangular and slotted antennas, was 6.3943 and 6.3094 dB at an efficiency of 98.338% and 98.651%, respectively.

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<input type="checkbox"/>	141	Optimizing Multiple Beam Patterns for 5G mmWave Phased Array Applications <i>Open Access</i>	Mohammed, J.R.	2023	Periodica polytechnica Electrical engineering and computer science 67(4), pp. 369-375	0
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In this paper, a new technique for shaping multiple beam patterns antenna arrays for 5G and beyond wireless massive MIMO communication systems is introduced. The technique aims to concentrate the radio energy in specific coverage areas with a desired shape by optimizing the excitation amplitudes and phases of the array elements. To assess the proposed technique, both genetic algorithm and particle swarm optimization are utilized to optimize the excitation amplitudes and phases of the array elements such that the required number of the beams, their shapes, their directions, their power magnitudes, and the desired sidelobe pattern can be achieved. Simulation results fully confirm the effectiveness of the proposed technique in generating optimized shaped patterns that can be suitably used for distributing the radiation powers over the coverage areas in the mobile communication base stations.

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<input type="checkbox"/>	142	Enhancing IoT Forensics through Deep Learning: Investigating Cyber-Attacks and Analyzing Big Data for Improved Security Measures	Salih, K.M.M., Ibrahim, N.B.	2023	2023 4th International Conference on Big Data Analytics and Practices, IBDAP 2023	3
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This paper discovers IoT (Internet of Things) forensics and how the deep learning is improving the efficiency of digital investigations. With the exponential growing of IoT, effective security measures and protocols are obligatory to protect from cyber risks and threats. However, IoT devices are remain vulnerable to attacks, So, this led us to data breaches, loss of privacy, and other harmful consequences. IoT forensics is investigates and analyzes digital evidences related to IoT devices and then identify the source of cyber-attack. This paper has been discussed the fundamentals' of IoT forensics also the important role it plays in the realm of cybersecurity. Furthermore, this paper explores the different kinds of IoT datasets and how we can automate the analysis of big data by using deep learning. Also, it helps in identify potential sources of evidence, and construct predictive models to prevent future attacks. The paper also shows experiments of two deep learning models, LSTM and RNN, on a binary, 6 class, and 15 class classification. Different evaluation metrics have been used like: precision, recall, F1-score, and ROC which allow investigators to objectively evaluate the forensic model's effectiveness. The Edge-IIoTset dataset developers who used deep neural networks (DNNs) were compared to the research findings, and it was discovered that the RNN model with the given architecture behaved the best on the dataset.

<input type="checkbox"/>	143	Performance Evaluation of Compound Plane-Wave Imaging Combined with the Generalized Coherence Factor <i>Open Access</i>	Alomari, Z.R., Abdulatef, W.M., Al-Zubaidy, M.A.	2023	Advanced Biomedical Engineering 12, pp. 204-213	0
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Hide abstract  [Locate full text](#) [Related documents](#)

Compound plane-wave imaging (CPWI) is a widely used and investigated imaging technique in medical ultrasound because it provides high quality ultrafast imaging for recent applications such as elastography. CPWI can be either coherent to provide high resolution and reduce sidelobe, or incoherent to provide high speckle homogeneity. To further improve imaging quality, coherence-based factors are used for weighting the output of ultrasound beamformers. This work studied the effects of the number of compounded frames and the step between these frames on the imaging quality produced by coherent and incoherent CPWI in the presence of the generalized coherence factor (GCF). The quality of the produced images of two different RF datasets was assessed in two different scenarios, in addition to conducting cyst phantom simulations. Results showed that the amount of image contrast improved by GCF increased, while the amount of resolution improved by GCF decreased, with the increase in step between frames. The same results were obtained in both types of CPWI. On the other hand, increasing the number of frames had almost no effect on the amounts of improvement provided by GCF. When CPWI is used in ultrafast imaging, it is important to monitor frame rates as well as imaging quality; these two factors are, respectively, inversely and directly proportional to the number of compounding frames. Therefore, the results of this research provide guidelines for accurate angle selection for CPWI so that a trade-off between imaging quality and frame rate is achieved.

<input type="checkbox"/>	144	New Quantum Genetic Algorithm Based on Constrained Quantum Optimization <i>Open Access</i>	Almasaoodi, M.R., Sabaawi, A.M.A., El Gaily, S., Imre, S.	2023	Karbala International Journal of Modern Science 9(4), pp. 637-649	1
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Hide abstract  [Locate full text](#) [Related documents](#)

In the past decades, many quantum algorithms have been developed. The main obstacle that prevents the widespread implementation of these algorithms is the small size of the available quantum computer in terms of qubits. Blind Quantum Computation (BQC) holds the promise of handling this issue by delegating computation to quantum remote devices. Here, we introduce a novel Constrained Quantum Genetic Algorithm (CQGA) that selects the optimum extreme (minimum or maximum) value of a constrained goal function (or a vast unsorted database) with very low computational complexity. Since the convergence speed to the optimal solution for the Constrained Classical Genetic Algorithm (CCGA) is highly dependent on the level of quality of the initially selected potential solutions, the CCGA's heuristic initialization stage is replaced by a quantum one. This is achieved by exploiting the strengths of the Constrained Quantum Optimization Algorithm (CQOA) and the BQC. The proposed CQGA is applied as an embedded computational infrastructure for the uplink multi-cell massive MIMO system. The algorithm maximizes the energy efficiency (EE) of the uplink massive MIMO while considering different users target bit rate classes. Simulation results show that the suggested CQGA maximizes energy efficiency through careful computation of the optimal transmit power for each active user using fewer computational steps than the CCGA. We demonstrated that when the overall transmit power set or the overall number of active users increases, the CQGA keeps executing a smaller number of generation steps compared to the CCGA. For instance, if we consider a scenario where the overall number of active users ( $K$ ) is set to 18, the CQGA finds the optimal solution with a smaller number of generation steps equal to 6, while the CCGA takes a larger number of generation steps, reaching 65.

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<input type="checkbox"/>	145	Performance of Ultra Reliable low Latency Communication (URLLC) in 5G Wireless Networks	Yonis, A.Z.	2023	Przegląd Elektrotechniczny 2023(9), pp. 76-79	0
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Recently, The research paper will focus on allowing URLLC services in order to estimate electric vehicle wireless charging (EVWC) which is become the most important topic due to the many advantages that can get from it such as lack of wires which tends to reduce the risk of wires that they get damaged at any time, saving time, simple and the car battery smaller than electric vehicle charge using wire, also it is considered one of the green technology applications where it tends to reduce the pollution in the world. This technology is one of the intelligent applications like smartphones wireless charging and still grow to make it a flexible dealing to allow all electric car charging wireless. In this research paper, a type of electric car (EC) has been discussed and designed a model of wireless electric vehicles charging to get a 5 kW charger then discussed the results.

<input type="checkbox"/>	146	Efficient near-field localization aided with reconfigurable intelligent surface using geometric dilution of precision <i>Open Access</i>	Alhafid, A.K., Younis, S., Mohammed Ali, Y.E.	2023	Journal of Information and Telecommunication  Article in Press	1
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Reconfigurable intelligent surfaces (RISs) are anticipated to constitute a critical component of forthcoming communication networks due to their ability to establish controllable wireless environments. Furthermore, RIS can be leveraged to solve infeasible localization problems. This paper presents a novel adoption of the geometric dilution of precision (GDoP) analysis in the design of non-line of sight (NLoS) single anchor millimetre wave (mmWave) large RIS-aided localization in the near-field. Considering downlink transmission, the time difference of arrival (TDoA) is used to estimate the positioning by extracting the signal contribution of each RIS tile. Considering the enriched time of arrival (ToA) measurements provided by RIS, the RIS tiles involved in TDoA-based estimation should be selected properly. Therefore, the GDoP adopted in this context is to select RIS tile combinations that achieve minimum GDoP values. It has been shown via numerical simulation that the proposed design of the RIS-aided localization outperforms other state-of-the-art techniques that adopt the signal-to-noise ratio (SNR) for the selection of the RIS tiles. It is demonstrated that the proposed scheme can provide sufficient localization accuracy involving only 10% of RIS tiles, whereas the SNR method requires about (70–80) % of the tiles to approximately achieve the same accuracy.

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<input type="checkbox"/>	147	An elliptical dipole nanoantenna with an elliptical slot for enhanced plasmonic performance   [Eliptyczna nanoantena dipolowa z eliptycznym gniazdem dla zwiększenia wydajności plazmonicznej]	Rasheed, A.A., Sayidmarie, K.H.	2023	Przegląd Elektrotechniczny 2023(10), pp. 160-164	0
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The increasing interests in plasmonic nanoantennas focus on changing the resonance wavelength or field localization by changing the shape and size of the nanoantenna. A hollow elliptical dipole nanoantenna (HEDNA) is proposed by adding a slot in the two elliptical arms of the dipole nanoantenna. The plasmonic resonance wavelength and the localized field in the gap zone are increased. Moreover, the slot can be designed to enhance the overall absorption and reduce scattering. The simulations revealed that the antenna with the slot HEDNA scatters just 43% of the incident power and absorbs the remaining 57%, while the parent solid dipole scatters 90% of coupled power and absorbs the residual 10%. This represents switching from a scatterer to an absorber nanoantenna. Moreover, the achieved field enhancement in the gap region of the HEDA is more than three folds that without a slot. The proposed structure is easily applicable in sensing, thermoplasmonics, solar cells, and energy harvesting.

<input type="checkbox"/>	148	Characterization of a Split Circle Element for Microstrip Reflectarrays <i>Open Access</i>	Sayidmarie, K.H., Yahya, L.S.	2023	Journal of Telecommunications and Information Technology (3), pp. 62-67	0
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A split circular element is proposed as a unit cell for reflectarray antennas. The unit cell is derived from a circle divided into four equal sectors. The radius of two oppositely located sectors is then scaled by a certain factor to form the proposed shape. The CST Microwave Studio Suite software simulator was used to investigate the performance of the proposed unit cell, which was evaluated using Floquet port excitation. The designed element's reflection phase range was compared to that of a conventional circular patch. Four scenarios of varied substrate characteristics are investigated for the antenna to establish the best performance parameters. The simulations showed that a basic substrate with a thickness of 0.16 mm and a dielectric constant of 3.2, backed by a 3 mm foam with a dielectric constant of 1.05 and a scaling factor of 0.72 offers a wide phase range of 601.3°. The obtained phase slope is 76.37°/mm or 134°/GHz.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 149	Multiband Patch Antenna with SINC-Shaped Edges for Sub-6 GHz Applications <i>Open Access</i>	Sultan, Q.H., Sabaawi, A.M.A., Abawi, B.M., Luhaib, S.W.O.	2023	Progress In Electromagnetics Research C 138, pp. 51-63	1

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In this paper, several multiband patch antennas with sinc-shaped edges were analyzed, designed, simulated, and implemented for modern sub-6 GHz applications. The aim is to use the sinc function parameters such as amplitude and number of maxima (frequency) to control the antenna performance such as resonance and radiation characteristics. It is shown that changing the sinc pattern parameters has a significant impact on the resonance of the antenna, and hence these parameters can be used to directly control the multiband behavior of the antenna. The proposed antenna designs were manufactured, and their performance was tested experimentally in the lab and compared to simulation results. An acceptable agreement between experimental and simulated results was achieved.

<input type="checkbox"/> 150	Preceptoring of Graduate Nursing Students in Iraq <i>Open Access</i>	Hamarash, M.Q., Yaas, M.H., Almushhadany, O.I., Ibrahim, R.H.	2023	Advances in Medical Education and Practice 14, pp. 1025-1034	0
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Purpose: The objective of this study is to explore and examine the approaches utilized by preceptors in guiding graduate nursing students toward developing critical thinking skills within governmental nursing colleges in Iraq. Methods: The study involved 215 preceptors employed in Al governmental nursing colleges in Iraq. Purposive sampling was used to select participants who had at least two years of nursing preceptorship experience. A survey instrument consisting of two open-ended questions was used to collect data, and descriptive and inferential statistics were used to analyze the data. Results: Most preceptors (82.8%) agreed that critical thinking is important to graduate nursing education, and 93.5% agreed that critical thinking skills are adequately taught during preceptorship. Case studies (92.1%), simulation (87.4%), and problem-based learning (81.9%) were the most commonly used methods to enhance critical thinking skills in nursing students during preceptorship. The study identified six main challenges, including managing the diverse needs and abilities of students, integrating students into the clinical environment, educators' lack of knowledge, selection criteria, teaching strategies, and language. Conclusion: The study concluded that most preceptors acknowledged the significance of critical thinking in nursing education and felt that these skills were effectively taught during preceptorship. Preceptors employed different techniques like case studies, simulation, and problem-based learning to enhance critical thinking abilities in nursing students.

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<input type="checkbox"/>	151	Efficient PCG classification system based on Slantlet transform   [Wydajny system klasyfikacji PCG oparty na transformacji Slantleta]	Khaleel, A.N., Jasim, A.M., Khidhir, A.M.	2023	Przegląd Elektrotechniczny 2023(8), pp. 141-145	0
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Phonocardiogram (PCG) signals represent the recording of sounds and murmurs, which result from heartbeats. PCG signals analysis is critical in the diagnosis of normal and abnormal cases of the heart. A variety of methods have been proposed for PCG signals analysis. In this paper, a classification system for PCG signals is introduced based on SLT filters with detailed statistical functions and ANN algorithm. The proposed system is able to diagnose normal and four abnormal cases. The extracted features from heart sound signal are based on 3-scale slantlet filters and three statistical equations; power, average and standard deviation of the SLT filter coefficients. Based on these important features, ANN were trained and tested to obtain high overall classification accuracy. The results show that the proposed classification system is capable to diagnose the normal PCG case and other four different abnormal cases with an overall diagnosis accuracy of 98.67%. This result of the proposed system overcome other recent works.

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<input type="checkbox"/>	152	A Data Mining Approach for Analysis of Telco Customer Churn	Al-Shakarchi, A.H., Mostafa, S.A., Saringat, M.Z., (...), Khaleefah, S.H., Jaber, M.M.	2023	AICCIT 2023 - Al-Sadiq International Conference on Communication and Information Technology pp. 23-27	0
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Telco is a telephone service provider that gives data communications access. Information technology and the capability to stay connected and communicate all day are becoming the modern living trend. Telco company offers different promotions and services to attract consumers to select their telco company. The current service is inexpensive, and the quality of most telco companies is the same. Understanding the customer churn rate is crucial as it is highly associated with customer retention. This paper classified customer churn based on various attributes and utilized four different machine learning algorithms: Averaged Perceptron (AP), Bayes Point Machine (BPM), Decision Forest (DF), and Logistic Regression (LR). Microsoft Machine Learning Studio is used for Implementing and Testing Classification Models. The models are evaluated on Telco Customer Churn (TCC) dataset in terms of accuracy, precision, recall, and error. The experimental results show that the LR model has an average accuracy of 80.1% compared to the other three models, in which AP scores 79.92%, BPM scores 80.04%, and DF scores 77.04%. The obtained results can provide significant insights for telecommunications companies to recognize market demands and develop appropriate strategies to enhance customer retention.

<input type="checkbox"/>	153	Machine Learning Regression Approach for Estimating Energy Consumption of Appliances in Smart Home	Husin, N.S.I.M., Mostafa, S.A., Jaber, M.M., (...), Al-Shakarchi, A.H., Abdulsattar, N.F.	2023	AICCIT 2023 - Al-Sadiq International Conference on Communication and Information Technology pp. 229-233	0
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This paper attempts to use machine learning algorithms to estimate the energy consumption of appliances in a smart home environment. This work aims to promote awareness among smart home systems and users about their appliances' energy consumption and guide them toward energy-saving practices. To achieve this, three machine learning algorithms, namely Decision Forest (DF), Boosted Decision Tree (BDT), and Linear Regression (LR), were chosen for regression tasks to estimate the energy consumption of several appliances accurately. The time-series datasets, namely appliance energy prediction datasets, are used for training and testing the algorithms. The Cross-Industry Standard Process for Data Mining (CRISP-DM) methodology, which comprises six processing phases, was employed in this work. The test is performed by utilizing 10-fold cross-validation. The results obtained assess the models' performance in predicting the appliances' energy consumption. The experimental results indicate that the three models exhibit varying degrees of accuracy in predicting energy consumption, as measured by their respective R-squared values. Among the three models, the random forest model exhibited superior performance by achieving the highest R2 values of 0.62 and 0.54 during the training and testing phases, respectively.

<input type="checkbox"/>	154	IMPACT OF SCREEN EXPOSURE ON LANGUAGE DEVELOPMENT AMONG TODDLERS AND PRESCHOOLERS IN NINEVEH PROVINCE <i>Open Access</i>	Aziz, Z.W., Aljammas, E.K., Al-Allaf, L.I.K.	2023	Military Medical Science Letters (Vojenske Zdravotnicke Listy) 92(3), pp. 259-271	0
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**Background:** There is a marked use of technology by children in our societies, particularly during the last 2decades, which may be associated with limitation of their milestones developments including speech. **Objectives:** To determine the association between screen exposure and speech development delay among toddlers and preschoolers, to clarify the correlation linking the visioning of the screen and the input-data – of the child and his(her) mother, and to identify the impact of screen withdrawal on the possible enhancement of speech. **Material and Methods:** This descriptive cross-sectional study enrolled children (n=237) who had a history of delay in speech or complete loss of the ability to speak as a chief complaint. The age ranged from 12–60 months categorized into two groups: toddlers and preschoolers. All cases had programmed medical visits to the private clinics of psychiatry in Nineveh Province, Iraq. Data were obtained from interview questionnaire reports including; digital device type, first exposure age, spent time, and child-maternal parameters. Follow-up for 6months was done beyond the departure of those media. **Results:** This study involved 47 (19.8%) toddlers, and 190 (80.2%) preschoolers with an inclination toward males. Children with speech postponement were spotted in around 225 (94.9%), while the others had complete loss of the ability to speak. In both sets, a considerable association between speech delay and screen viewing was shown, impressively those who commenced screen exposure at less than twenty-four months of age and consumed  $\geq 4$ hr per day for screens visioning. Six –months after quitting these devices, there is speech improvement was recognized in 36.7% of cases. **Conclusions:** Positive associations were noticed between the first exposure age and high frequency of screen spent time and speech delays in children, especially toddlers. This work recommends an instantaneous parent's and researchers' consciousness, besides that from health consultants, on the acceptable usage of screen's visioning time in consonance with children to support healthy development in digital life.

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| <input type="checkbox"/> | 155 | DUAL FUZZY LOGIC PID CONTROLLER BASED REGULATING OF DC MOTOR SPEED CONTROL WITH OPTIMIZATION USING HARMONY SEARCH ALGORITHM<br><i>Open Access</i> | Khather, S.I.,<br>Ibrahim, M.A.,<br>Ibrahim, M.H. | 2023 | Eastern-European<br>Journal of Enterprise<br>Technologies<br>4(8(124)), pp. 6-14 | 0 |
|--------------------------|-----|---|---|------|--|---|

This paper discusses the implementation of a Proportional- Integral-Derivative (PID) controller for regulating the speed of a closed loop four quadrant chopper fed DC motor. The PID controller is combined with a Dual Fuzzy Logic Controller to form a DFPIID controller for enhancing the performance of speed control of the DC motor. The DFILC is optimized using a metaheuristic algorithm known as Harmony Search Algorithm (HSA). The major aim of this research is to gain an effective control over the speed of the motor in the closed loop environment. For achieving this, the parameters for the DFPIID are selected through time domain analysis which aims to satisfy the requisites such as settling time and peak overshoot. Initially, the fuzzy logic controller in the DFPIID controls the coefficients of the PID achievement gain an effective control over the system error and rate of error change. Further, the DFPIID is improved by the HAS for obtaining a precise correction. The solutions obtained by tuning the DFPIID controller are evaluated from simulation analysis conducted on a MATLAB/SIMULINK platform. The closed loop performance is analyzed in both time and frequency domain analysis and the performance of DFPIID is optimized using the HSA algorithm to obtain precise value of the control process. As observed from the Simulation analysis, the DFPIID-HSA generates optimized control signals to the DC motor for controlling the speed. The performance of the intended speed control approach is analyzed in terms of different evaluation metrics such as motor speed, torque and armature current. Experimental outcomes show that the proposed approach achieves better control performance and faster speed of DC motor compared to conventional PID controllers and SMC controllers.

<input type="checkbox"/>	156	MOTHERS' KNOWLEDGE AND PRACTICE REGARDING HEALTHY NUTRITION AMONG BLIND CHILDREN IN MOSUL CITY <i>Open Access</i>	Shareef, A.A., Al-Fathy, M.Y., Al-Tameemi, S.A.J., Ismaeel, M.H.	2023	Military Medical Science Letters (Vojenske Zdravotnicke Listy) 92(3), pp. 217-225	0
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Background: Nutrition an integral part of child growth and development. Aim: Comparison regarding mothers' knowledge and practice between blind and non-blind child. Patients and Methods: A case control study design of 120 mothers (40 mother of blind child and 80 mother of non-blind child). It was adopted in UmAl-Rbean Development Foundation for Blind and purblind during. Results: revealed that 108 (90%) agree that with food we can control most of our disease. Diet-disease relationship reported by mothers were obesity 92 (77%) and hypertension 66 (55%) with P-value 0.017. Mothers' knowledge regarded true fact (playing sport and eat and drink, and do not be extravagant were 120 (100%) and 76 (63.3%) respectively. Mothers reported that 72 (60%) of study sample eat protein twice a day, 92 (76.7%) eat carb frequently aday, 54 (45%) eat fat once a day, 68 (56.7%) eat fruit and vegetable twice a day. Drinking plenty of water seen among blind child 18 (45%) while drinking of water with meal seen among non-blind 66 (82.5%). Drinking of tea commonly among non-blind 72 (90%) and specially with meal 28 (38.9%). Conclusion: The study concluded that mothers of non-blind children more knowledgeable than mothers of blind children. Eating carb and fat twice a day commonly seen among blind child mean while eating protein and fruit and vegetable twice a day more prevalent among non-blind child. Recommendation: Exclusive education program to mother of blind child to improve their knowledge and enhance health practice toward their child nutrition.

□ 157	DCNN-BASED EMBEDDED MODELS FOR PARALLEL DIAGNOSIS OF OCULAR DISEASES <i>Open Access</i>	Al Jbaar, M.A., Dawwd, S.A.	2023	Eastern-European Journal of Enterprise Technologies 4(2(124)), pp. 53-69	0
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An automated system for detecting ocular diseases with computer-aided tools is essential to identify different eye disorders through fundus pictures. This is because diagnosing ocular illnesses manually is a complicated, time-consuming, and error-prone process. In this research, two multi-label embedded architectures based on a deep learning strategy were proposed for ocular disease recognition and classification. The ODIR (Ocular Disease Intelligent Recognition) dataset was adopted for those models. The suggested designs were implemented as parallel systems. The first model was developed as a parallel embedded system that leverages transfer learning to implement its classifiers. The implementation of these classifiers utilized the deep learning network from VGG16, while the second model was introduced with a parallel architecture, and its classifiers were implemented based on newly proposed deep learning networks. These networks were notable for their small size, limited layers, speedy response, and accurate performance. Therefore, the new proposed design has several benefits, like a small classification network size (20 % of VGG16), enhanced speed, and reduced energy consumption, as well as the suitability for IoT applications that support smart systems like Raspberry Pi and Self-powered components, which possess the ability to function as long as a charged battery is available. The highest accuracy of 0.9974 and 0.96 has been obtained in both proposed models for Myopia ocular disease detection and classification. Compared to research that had been presented in the same field, the performance accuracy of each of the two models shown was high. The P3448-0000 Jetson Nano Developer Kit is used to implement both of the proposed embedded models.

<input type="checkbox"/>	158	EVALUATION OF THE EFFECTS OF N-ACETYL CYSTEINE ON SERUM GLUCOSE, LIPID PROFILE, AND BODY WEIGHT IN RATS WITH FRUCTOSE-INDUCED METABOLIC SYNDROME <i>Open Access</i>	Yahya, A.Z., Taqa, G.A., Alkataan, M.A.	2023	Military Medical Science Letters (Vojenske Zdravotnicke Listy) 92(3), pp. 194-207	0
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Background: Overconsumption of fructose may cause metabolic syndrome (MetS). MetS pathogenesis is caused by oxidative stress, cellular malfunction, and systemic inflammation caused by hereditary and environmental factors. N-acetylcysteine (NAC) has become associated with the phrase "antioxidant." Most researchers use and test NAC with the goal of preventing or reducing oxidative stress. Aim: To determine the positive effects of NAC on blood glucose, lipid profile, and body weight in fructose-induced metabolic syndrome in albino rats. Materials and Methods: Forty male albino rats, 10-12 weeks old, were haphazardly divided into five groups of identical size. Group I (negative control) received tap water for 12 weeks. Group II (positive control) received a 60% w/w fructose solution (60% FS) instead of tap water for 12 weeks. Group III (NAC) received tap water and an intra-peritoneal (IP) injection of NAC (150 mg/kg/day) for 12 weeks. Group IV (protection) co-administered 60% FS orally and NAC IP injection (150 mg/kg/day) for 12 weeks. Group V (treatment) received 60% FS for 8 weeks followed by 4 weeks of drinking tap water with NAC IP injection (150 mg/kg/day). Blood samples were taken at weeks 0, 8, and 12 and were tested for serum glucose and lipid profile. All animals of each group were weighted at weeks 0, 8 and 12 of the study. Results: Concerning serum glucose, group II showed increased glycaemia at week 8 and further elevation during week 12. Group III displayed normal glycaemia at weeks 8 and 12. In group IV, glycaemia showed elevation at week 8 followed by almost complete restoration at week 12. In group V, there was an increased glycaemia at week 8 followed by a partial restoration at week 12. Regarding lipid profile parameters, group II demonstrated a deterioration during week 8 and more worsening during week 12. There were no significant changes in group III's parameters during weeks 8 and 12. Group IV displayed a worsening in lipid profile during week 8 followed by a nearly complete improvement during week 12. During week 8, group V deteriorated, followed by a partial recovery during week 12. Concerning body weight, group II showed a weight gain at week 8 and further elevation during week 12. Group III displayed normal glycaemia at weeks 8 and 12. In group IV, glycaemia showed elevation at week 8 followed by almost complete restoration at week 12. In group V, there was an increased glycaemia at week 8 followed by a partial restoration at week 12. At week 8, there was a significant elevation in body weights in groups II and V compared to group I. Moreover, a significant reduction in body weight was recorded in group IV

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 159	Enhance E2E Online Shopping System Using Secure Fingerprint Parcel Delivering Method	Narayanasamy, D.D.A./L., Al-Sanjary, O.I., Sami, A.S., Kashmola, M.Y.	2023	Lecture Notes on Data Engineering and Communications Technologies 179, pp. 486-496	0

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Nowadays, with the rapid growth of online marketing or online purchasing is increasing day by day as customers tend to purchase or buy goods online rather than physical shopping. This was due to the recent Covid-19 outbreak, which led to a massive or vast of online shopping businesses or franchises to have emerged. However, with this vast growth of online businesses with massive online purchases being done every day, questions are being raised by customers as were these online businesses secure enough when comes to parcel delivery. With regards to that, a survey was conducted to gather customer's feedback on the current online shopping method, whether was it secure enough or not and this gathered data was the main reason or input that provided purpose to initiate this research, where surprisingly, majority of the customers agreed that the current online shopping is not secured in terms of parcel delivery, in which there is no customer authentication process being done upon parcel delivered. Besides that, no designated parcel lockers are being built for unattended customers and even though there are parcel lockers, these lockers have low-security levels [1]. Therefore, the customer's concerns and the issues highlighted by previous researchers, explain the purpose of this research which was conducted to help curb the issues by implementing an alphanumeric sequence for customer verification and fingerprint sensing for customer confirmation during parcel delivery. Finally, this method will also be implemented for parcel lockers to enhance the security levels upon parcel collection.

<input type="checkbox"/> 160	A Comprehensive Study on Energy Efficient-Cluster Based Routing Protocols in the Internet of Things: Hierarchical Routing Protocol	Saadallah, N.R., Alabady, S.A.	2023	Jordan Journal of Electrical Engineering 9(3), pp. 369-409	0
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Wireless sensor networks (WSNs) have several uses in a variety of industries; they are crucial components in many cutting-edge applications. WSNs are considered one of the newest applications to emerge in the field of the Internet of Things (IoT), which enables the interconnection of various items or machines over the Internet, including the Internet of Things. This is why increase in the lifetime of the networks requires a strategy (protocol) that reduces the power consumption of the transmission or reception of data by the sensor nodes. A lot of research has been conducted, recently, to extend the lifetime of network sensors. The Hierarchical Cluster-based protocols and the Hierarchical Chain-based approaches have been created as solutions to this issue to reduce network traffic heading down the sink and so increase the lifetime of the network. In this survey, we look into the benefits and drawbacks of clustering when IoT is combined with cutting-edge technologies for computing and communication like 5G, fog/edge computing, and blockchain. Additionally, this survey offers helpful insights into the field of IoT clustering studies, enables a deeper comprehension of its design issues for IoT networks, and sheds the light on its potential future applications in cutting-edge IoT-integrated technologies.

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<input type="checkbox"/>	161	Molecular Characterization and Antibiotic Resistance Profile of <i>Staphylococcus haemolyticus</i> in Pregnant Women with Urinary Tract Infections <i>Open Access</i>	Aziz, L.M., Alhachami, F.R., Abdullah, M.A., (...), Kadham, M.J., Lahhob, Q.R.	2023	Iranian Journal of Medical Microbiology 17(3), pp. 354-360	0
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Background and Aim: *Staphylococcus haemolyticus* is a prominent pathogen in hospital-related infections, exhibiting high antibiotic resistance. This study aimed to investigate antibiotic sensitivity, biofilm formation, and the presence of virulence-associated genes in *S. haemolyticus* isolated from pregnant women with urinary tract infections. Materials and Methods: Clinical samples were collected from pregnant women with urinary tract infections between October 2021 and December 2022. *S. haemolyticus* isolates were identified using cultural, biochemical, and molecular methods. Antibiotic susceptibility was determined using the VITEK-2 system. Biofilm formation was assessed, and virulence-associated genes (*hla*, *hly*, *fnbA*, and *fnbB*) were detected using PCR. Results: Among 260 clinical samples, 36 *S. haemolyticus* isolates were identified. The isolates exhibited high resistance to Benzylpenicillin, Erythromycin, oxacillin, Trimethoprim/sulfamethoxazole, Levofloxacin, and Gentamicin. Resistance was lower to Tigecycline, linezolid, tobramycin, Rifampin, vancomycin, Moxifloxacin, Tetracycline, and Ticoplanin. Biofilm formation was negative in 69.4% and weak in 30.6% of isolates. The *hla* gene was present in all isolates, while *hly* was detected in 77.7%. Detection rates of *fnbA* and *fnbB* were 88.8% and 38.8%, respectively. Conclusion: This study highlights the high antibiotic resistance, limited biofilm formation ability, and prevalence of virulence-associated genes in *S. haemolyticus* isolates from pregnant women with urinary tract infections. These findings underscore the clinical significance of this bacterium and the need for infection control measures.

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<input type="checkbox"/>	162	Low Complexity Irregular Clusters Tiling Through Quarter Region Rotational Symmetry <i>Open Access</i>	Abdulqader, A.J.	2023	Progress In Electromagnetics Research C 137, pp. 81-92	1
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In order to reduce the complexity and cost of an  $N \times M$  large planar array from a practical point of view, firstly, the array matrix is divided into four equal  $N/4 \times M/4$  quarter regions, and then only one quarter is selected to be optimized. After that, this selected quarter region is tiled with a few irregular polyomino clusters (IPCs) and then rotating it to the other three-quarter regions. This method is called Quarter Region Rotational Symmetry (QRRS). The copy from the selected region is rotated by three angles 90, 180, and 270 degrees respectively until the main planar array is filled. Two methods of feeding clusters based on amplitude only and phase only were used to reduce the complexity further. In addition, the complexity can be reduced more by applying the thinning technique with clusters or building clusters for a part of the planar array. A genetic algorithm (GA) is used to implement these ideas until a radiation pattern (RP) useful for modern applications. An additional constraint is included in the optimization process represented by a mask to cover the pattern according to the desired shape. The simulation results showed that the RP can be fully controlled by applying the QRRS technique successfully while reducing the complexity of the feeding network to only 2.25% in the amplitude-only and phase-only cases, and 1.75% and 1.5% in the thinning and partially tiling cases, respectively. Moreover, a detailed design of the feeding network circuit of the main planar array based on IPC is given for practical implementation.

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<input type="checkbox"/>	163	Mobility Management for Indoor VLC Systems	Younus, S.H.	2023	International Conference on Transparent Optical Networks 2023-July	0
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In indoor visible light communication (VLC) systems, user's mobility degrades the quality of the connection. This is due to the small coverage area of the transmitters. This work presents control signals to observe the quality of the connection of the user during its mobility. Each transmitter will be given a unique control signal and this control signal is added with the transmitted data. The user receives data from one transmitter that gives a good link connection while connects with all transmitters through control signals. Thus, the performance of the transmitters will be observed by the user through the control signals. The results show that using control signals leads to reduce the outage probability and improve the quality of the connection comparing with VLC systems without control signals.

<input type="checkbox"/>	164	Using Control Signals to Obtain Synchronization of Transmitters in Indoor VLC systems	Younus, S.H.	2023	International Conference on Transparent Optical Networks 2023-July	0
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The target of this work is to reduce the effect of multipath propagation in indoor visible light communication (VLC) systems. This is accomplished by giving a control signal (CS) for each transmitter of the systems. The aim of this CS is to synchronize the transmitted data from transmitters. In addition, CSs are used to make the controller, which is used to manage the communication, knows all information about transmitters. This leads to eliminate the difference time propagation between transmitters and reduce the effect of multipath propagation. Results reveal that using CSs leads to improve channel bandwidth and signal to noise ratio (SNR) when the system operates at high data rate of 1 Gb/s.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 165	Unconstrained Quantum Genetic Algorithm for Massive MIMO System	Sabaawi, A.M.A., Almasaoodi, M.R., El Gaily, S., Imre, S.	2023	17th International Conference on Telecommunications, ConTEL 2023	2

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There are plenty of real-world applications that require finding extreme value in an unsorted database. This database can be enormously large, such that there is no available quantum computer or classical supercomputer that can execute the search process. We proposed a new unconstrained quantum genetic algorithm (QGA) in order to increase the probability of finding the global solution and escaping from local minima. This algorithm exploits the features provided by blind quantum computation (BQC), which holds the promise to handle this computation issue by delegating computation to quantum remote devices. Massive multiple-input multiple-output (MIMO) systems are used as a toy example for demonstrating the effectiveness of the developed quantum genetic method.

<input type="checkbox"/> 166	A Multi-Modal Stimulator System for Visual Prosthesis	Abdo, E.A., Yuan, P., Zheng, Y., Yakovlev, A., Degenaar, P.	2023	21st IEEE Interregional NEWCAS Conference, NEWCAS 2023 - Proceedings	0
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Blindness is a severe condition affecting both individuals and their families. In the past few decades, there have been many attempts at visual prostheses to restore vision to the blind. So far, these methods have restored rudimentary rather than functional vision. There are many challenges to overcome to reach the goal of true functionality. One issue is that the neuroprosthetic interface has only provided individual phosphenes - flashes of light, rather than perceptual information. This isn't a simple issue of resolution or contrast. Rather there is a mismatch between the way we present information to the brain, and how the brain interprets it. As such, the field has a broad agreement that we need an improved neural interface. This work explores an optoelectronic system that can combine optogenetic and electrical forms of neural stimulation to achieve the best benefits of both while negating their respective limitations. We present a concept system and its organization for the stimulus of neural tissue.

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<input type="checkbox"/>	167	Simulation of Multimedia Data Transmission Over WSN Based on MATLAB/SIMULINK <i>Open Access</i>	Dawood, A.A., Abdulaziz, A.S., Daood, A.I., Ali, Q.I.	2023	International Journal of Computing and Digital Systems 14(1), pp. 147-157	0
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The wireless sensor network (WSN) design requires investigating the effect of the transmit/receive operations on data quality. Having a convenient simulation model that facilitates and speeds up the work is a challenging task. The MATLAB/SIMULINK is considered as a handy tool that mimics real events for many applications. Unfortunately, the complete WSN model for multidimensional signals is not provided. Therefore, this paper introduces the MATLAB/SIMULINK model to deal with 1-D and 2-D signals in WSN. Many simulation blocks and codes have been programmed in this work to facilitate multimedia transmission over the WSN. The proposed multimedia WSN (MWSN) model will help WSN designers to plan and test their topology, taking into account most parameters and effects before implementing the network in real life. Hence, the WSN design time and cost will be reduced, as well as the malfunctioning will be avoided. Noise, interference and path loss were the major parameters that affect the quality of the transferred data. Those parameters are experimented in this work using different multimedia signals and the received signal quality is measured using peak signal-to-noise ratio (PSNR), and bit error rate (BER). Additionally, different channels that add many levels of interference and signal-to-noise ratio are used to imitate reality. The ultimate goal of this research is to model the physical layer and modify the internal architecture of WSN nodes to deal with multimedia signals. Therefore, floating-point re-quantization and buffers are invoked to cope with the design requirements. The resultant simulation model is designed to be scalable and easy to expand for many different WSN topologies. The proposed MWSN has visualization features, in addition to the assessment tools that simplify results' analysis. Besides, the availability of tuning its parameters can help researchers to adopt it for different channels.

<input type="checkbox"/>	168	Optimizing Energy Efficiency of MIMO Using Quantum Genetic Algorithm	Almasaoodi, M.R., Sabaawi, A.M.A., Gaily, S.E., Imre, S.	2023	2023 Advances in Science and Engineering Technology International Conferences, ASET 2023	2
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We introduce a novel quantum genetic algorithm (QGA) that selects the optimum extreme (minimum or maximum) value of an unconstrained goal function with very low computational complexity. The quality of the initial candidate solutions of the classical genetic algorithm (CGA) has a strong influence on the speed of convergence to the best optimum result. To boost the quality of the initial selected random candidate solutions, we merge the CGA with a quantum extreme value searching algorithm (QEVSA). We exploited the proposed QGA as an embedded computational infrastructure for the uplink multiple-input multiple-output (MIMO) system. The algorithm maximizes the energy efficiency of the uplink MIMO system. Simulation results show that the suggested QGA successfully achieves maximum energy efficiency by determining the best transmit power of the active users.

<input type="checkbox"/>	169	STIMULATION OF B3-RECEPTOR-INDUCED CENTRAL NEUROGENIC EDEMA AND VITIATED ELECTROLYTE HOMEOSTASIS IN EXPERIMENTAL RODENT MODEL	Yahya, S.K., Tawfiq, H.A., Saber, Y.	2023	Georgian Medical News 339(6), pp. 67-70	0
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Mirabegron is one of the recently introduced treatments for overactive bladder which avoids the undue effects of antimuscarinics such as constipation, headache, and dry mouth. This study investigated chronic relatively high doses of beta3 adrenergic receptor activation effect on electrolyte hemostasis and possible consequence on the central nervous system viability. In the present study, serum sodium, potassium, chloride, and calcium ion levels using flame photometry had been measured and eosin and hematoxylin staining for cerebral vasculature in the brain striatum. Results showed that chronic administration of mirabegron has a modest decrease in sodium, chloride, and potassium levels while increasing calcium serum levels. Moreover, edema and neuronal degeneration have been observed in Wistar rats. In summary, a chronic high dose of beta 3 adrenergic agonist Mirabegron might have a deleterious effect on electrolytes in question homeostasis due to loss of selectivity to beta 3 adrenoceptor when administered in a high dose.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 170	Performance Enhancement of Cooperative MIMO-NOMA Systems Over Sub-6 GHz and mmWave Bands <i>Open Access</i>	Saleh, A.A., Ahmed, M.A.	2023	Journal of Telecommunications and Information Technology (2), pp. 70-77	1

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In this paper, two radio links with different frequency bands are considered for base stations (BS) serving users via decode-and-forward (DF) cooperative relays. Backhaul and access links are proposed with sub-6 GHz and millimeter wave (mmWave) bands, respectively. Non-orthogonal multiple access (NOMA) is employed in the backhaul link to simultaneously transmit a superposed signal in the power domain, using the same band. The superposed signals, containing two signals that differ in terms of power allocation factors (PAFs), are designed for two selected DF relays in the BS. The two relays are chosen from several relays to be serviced by the BS based on a pairing algorithm that depends on different users' circumstances. The furthest DF relay detects the incoming NOMA signal directly, while the nearest one applies successive interference cancellation (SIC) before extracting its signal. Each DF relay forwards the detected signals toward their intended users over mmWave channels. Three performance metrics are utilized to evaluate the system's performance: outage probability, achievable throughput, and bit error rate. Comparisons between two mmWave bands in the access link (28 and 73 GHz) are made to demonstrate the superiority of the 28 GHz band in terms of the three performance-related metrics.

<input type="checkbox"/> 171	A Novel Ensemble Method for Network-Based Anomaly Intrusion Detection System	Al-Shakarchi, A.H., Al-A'araji, N.H., Al-mamory, S.O.	2023	Communications in Computer and Information Science 1764 CCIS, pp. 191-229	1
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Anomaly intrusion detection technologies are essential for network and computer security as the threat gets more serious yearly. Ensemble learning techniques are promising machine learning methods in anomaly detection that aim to produce multiple models and combine their output in a specific manner to obtain a perfect attack detection. However, it's still difficult to choose an appropriate ensemble method for a particular dataset. This research is conducted on entry-disciplinary concept in which the knowledge is transferred between network security and machine learning. Thus, the problematic of anomaly detection in network traffic is considered, and two novel ensemble methods for anomaly detection is presented. In both methods, the decision rule (henceforth, Rule-set) which is extracted from two different families of classifiers Naïve Bayes and decision tree J48 will be used as an ensemble constitute classifiers. In the first method, a set of Rule Evaluation Metrics (henceforth, REMs) extracted from Rule-sets will be used for combining classifiers and solving rules conflict whenever occurred. While in the second method the paper presents a novel stacking approach as follows: a cover property of Rule-sets will be utilized to re-encode training instances and produce metadata set that is used for training a meta-level classifier which produces the ultimate result. The evaluation of the proposed methods will be conducted on CICIDS2017 dataset in a term of detection rate, execution time, false alarm rate, accuracy, and other interesting measures. The experimental results show attests their superiority of accuracy that reaches 99.8630% and 99.8642% for first and second methods respectively and lower execution time for both methods especially for the second proposed method, which is (0.25 s).

<input type="checkbox"/>	172	VITAMIN D DEFICIENCY IMPACT ON BONE MINERAL DENSITY, SERUM CALCIUM/PHOSPHATE AND PARATHYROID HORMONE LEVELS IN TYPE 2 DIABETIC FEMALES VERSUS NON-DIABETICS	Fadhil, N.N., AL Qaissi, A.S.J., Albayaty, A.M.A.	2023	Malaysian Journal of Public Health Medicine 23(1), pp. 118-124	0
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In the last decade, in Iraq, an unexpectedly high prevalence of vitamin D deficiency among diabetic and non-diabetic adult patients started to markedly appear, especially among females. Vitamin D deficiency in type 2 diabetic (T2DM) females is expected to add more burden to their complaints. To study the impact of vitamin D deficiency on the diabetic females in regard to total serum calcium, phosphate, parathyroid hormone, and bone mineral density this study was conducted. The study was achieved in Mosul at a Clinic of Endocrinology and Diabetes. It is a case control observational study that enrolled 54 non-diabetic (non-DM) and 49 type 2 diabetic adult females with vitamin D deficiency who were age matched. After measuring serum vitamin D and electing the patients, serum concentrations of parathyroid hormone, total calcium, phosphate and alkaline phosphatase of the enrolled patients were measured, in addition to bone mineral density assessment by dual energy X-ray absorptiometry. The results were statistically analyzed, examined and compared. There were no significant differences between vitamin D deficient non-DM and T2DM females in regard to proportions of hypocalcemia, hypophosphatemia and secondary hyperparathyroidism. However, vitamin D deficient T2DM females showed as twice preponderance to have hypophosphatemia as non-DM female patients (odds ratio: 2.37). Lumbar vertebral and femoral neck osteopenia or osteoporosis affected 75.47% of non-DM vitamin D deficient patients and 76.59% vitamin D deficient T2DM female patients. Femoral neck osteoporosis was significantly more prevalent among vitamin D deficient T2DM female patients ( $p < 0.01$ ). The proportion of osteopenia and osteoporosis of lumbar vertebrae were comparable among vitamin D deficient, diabetic and non-diabetic females. However femoral neck osteoporosis is significantly more prevalent among vitamin D deficient T2DM females than among non-DM females. These findings call for an active workup and care to prevent the potential adverse complications in the femoral neck of T2DM patients.

<input type="checkbox"/>	173	Performance Improvement of Convolutional Neural Network Architectures for Skin Disease Detection <i>Open Access</i>	Ahmed, H.M., Kashmola, M.Y.	2023	International Journal of Computing and Digital Systems 13(1), pp. 657-669	1
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Convolutional neural networks are one of the most important techniques used in classification processes, specifically digital image classification. In this paper, work has been done to apply a set of different deep CNN architectures in classifying skin disease images. The performance of those deep networks or training methods was also improved which improved the image classification result. The main objective of this research paper is to improve the performance of convolutional neural network architectures for the detection of skin diseases, as the data set of images of skin diseases was adopted from the International Collaboration for Skin Imaging (ISIC) 2020, where the number of images that were used 5224 digital images of five skin diseases included 1327 Nevus pictures, 1098 pictures of basal cell carcinomas, 1099 pictures of pigmented benign keratoses, 1046 pictures of seborrheic keratoses, and 654 pictures of squamous cell carcinomas. The performance of AlexNet, ZfNet, VGG16, and VGG19 deep networks has been improved by generating new seed weights for each network based on Artificial Bee Algorithm, Bat Algorithm, Gray Wolf Optimization, Bacterial Foraging Optimization, and Particle Swarm Optimization. After obtaining the results from the improved architectures, it was found that the performance accuracy increased significantly, and the architectures gave clear stability in training the deep network data set.

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<input type="checkbox"/>	174	A Fuzzy Logic IoT-Based Temperature and Humidity Control System for Smart Buildings <i>Open Access</i>	Al-Talb, H.N.Y., Al-Faydi, S.N.M., Fathi, T.A., Al- Adwany, M.A.S.	2023	International Journal of Computing and Digital Systems 13(1), pp. 139-147	0
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Cooling systems are becoming an important part of everyday life with the exponential increase in cooling devices. Consequently, the power consumption is also increasing simultaneously. This paper aims to design an intelligent system to analyze the automation of cooling systems for smart buildings by applying fuzzy logic rules for different temperature and relative humidity parameters to control the surrounding air and power consumption. In such systems, the temperature and the relative humidity are considered input parameters, and the Ac mode is an output parameter. The system obtains the input data from the Temperature and humidity (DHT11) sensor by the Arduino microcontroller, the obtained data are then analyzed by the fuzzy logic control system. This system automatically controls the cooling devices when the temperature varies between 0 oC to 50 oC, and the relative humidity value varies between 0% to 90%. The analyzed data then is sent to ESP8266-12E Node MCU Wi-Fi microcontroller to monitor and control the real-time parameters online using the IoT through ThingSpeak. This system can provide an early warning indication to the user to acknowledge that the real-time remote parameters are changed and at the same time it triggers the cooling system to adapt the temperature condition to a desirable one. The obtained results show the proposed system can be applied practically in smart buildings.

<input type="checkbox"/>	175	A Fuzzy Logic IoT- Based Temperature and Humidity Control System for Smart Buildings	Al-Talb, H.N.Y., Al-Faydi, S.N.M., Fathi, T.A., Al-Adwany, M.A.S.	2023	International Journal of Computing and Digital Systems 13(1), pp. 139-147	1
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Cooling systems are becoming an important part of everyday life with the exponential increase in cooling devices. Consequently, the power consumption is also increasing simultaneously. This paper aims to design an intelligent system to analyze the automation of cooling systems for smart buildings by applying fuzzy logic rules for different temperature and relative humidity parameters to control the surrounding air and power consumption. In such systems, the temperature and the relative humidity are considered input parameters, and the Ac mode is an output parameter. The system obtains the input data from the Temperature and humidity (DHT11) sensor by the Arduino microcontroller, the obtained data are then analyzed by the fuzzy logic control system. This system automatically controls the cooling devices when the temperature varies between 0 oC to 50 oC, and the relative humidity value varies between 0% to 90%. The analyzed data then is sent to ESP8266-12E Node MCU Wi-Fi microcontroller to monitor and control the real-time parameters online using the IoT through ThingSpeak. This system can provide an early warning indication to the user to acknowledge that the real-time remote parameters are changed and at the same time it triggers the cooling system to adapt the temperature condition to a desirable one. The obtained results show the proposed system can be applied practically in smart buildings.

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<input type="checkbox"/>	176	Comparison of the Bone Mineral Density and Bone Mineral Content between Pre and Post-Menopausal Women	Qasem, A.A., Razaq, M.A., Majeed, K.G.	2023	Journal for ReAttach Therapy and Developmental Diversities 6(4), pp. 201-208	0
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density, T-score, Z score, and fracture risk before and after menopause. Methods/Statistical analysis: A total of 100 female including 45 pre menopause ( PM) and 55 post menopause(PoM) are participated in the study. BMDs of the lumbar vertebrae were assessed using the DXA technique. The mean age of the PM group is (  $40 \pm 7.21$  ) years, while the mean age of the (PoM) is  $63 \pm 7.24$  years. Findings: The bone mineral content ( BMC) values for the (PM) group in the lumbar spine were 11.25, 13.89, 16.48, 18.86, and 60.47 g. Among (PoM) group, it was 10.71, 13.25, 16.05, 17.51, and 57.51 g respectively. And the BMD values of the lumbar spine were  $0.94 \pm 0.12$  g/cm<sup>2</sup> vs.  $0.88 \pm 0.20$  g/cm<sup>2</sup>,  $1.05 \pm 0.24$  g/cm<sup>2</sup> vs.  $1.02 \pm 0.18$  g/cm<sup>2</sup>,  $1.15 \pm 0.22$  vs.  $1.10 \pm 0.21$  g/cm<sup>2</sup>,  $1.18 \pm 0.21$  vs.  $1.13 \pm 0.21$  g/cm<sup>2</sup> and  $1.09 \pm 0.21$  vs.  $1.04 \pm 0.17$  g/cm<sup>2</sup> for L1, L2, L3, L4, and total L1-L4.

<input type="checkbox"/>	177	Tracking Infected Covid-19 Persons and their Proximity Users Using D2D in 5G Networks <i>Open Access</i>	Abdulqadir, M.Q., Janaby, A.O.A.	2023	Journal of Communications Software and Systems 19(1), pp. 1-8	0
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—The world witnessed a pandemic that needs to be limited. COVID-19 is a disease that spreads among people when an infected person is in close contact with another. To decrease the virus spreading, World Health Organization (WHO) imposed precautionary measures and suggested some rules to be followed such as social distancing and quarantining the infected people. We propose a model, using D2D and IoT technology, for tracking infected persons with COVID-19 and its proximity. If a person (mobile device) gets close to an infected person, he will also get infected, so by continuous moving, the infection will be transmitted. Thus, identifying the infected persons and their contacts will limit the spread of the disease. In each scenario, it is possible to distinguish the number of infected people and know from whom they are infected, and the location of the infection. The simulation shows the tracking of a mobile device when proximate infected person at a distance of 3 meters. As a result, our proposed D2D model is effective, especially in the scenario which found the infected person with COVID-19, tracks them, determines minimum distances, and recognizes the source of the infection. Thus, the model can limit the rapid spread of COVID-19 as it determines the 3meters distance from infected person and send precaution messages to the network.

<input type="checkbox"/>	178	War and oncology: cancer care in five Iraqi provinces impacted by the ISIL conflict <i>Open Access</i>	Skelton, M., Al-Mash'hadani, A.K., Abdul-Sater, Z., (...), Al-Bakir, A.M., Mula-Hussain, L.	2023	Frontiers in Oncology 13,1151242	0
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War and cancer have been intertwined in Iraq for over three decades, a country where the legacies and ongoing impacts of conflict have been commonly associated with both increased cancer rates as well as the deterioration of cancer care. Most recently, the Islamic State of Iraq and the Levant (ISIL) violently occupied large portions of the country's central and northern provinces between 2014 and 2017, causing devastating impacts on public cancer centers across central and northern Iraq. Focusing on the five Iraqi provinces previously under full or partial ISIL occupation, this article examines the immediate and long-term impacts of war on cancer care across three periods (before, during, and after the ISIL conflict). As there is little published data on oncology in these local contexts, the paper relies primarily upon the qualitative interviews and lived experience of oncologists serving in the five provinces studied. A political economy lens is applied to interpret the results, particularly the data related to progress in oncology reconstruction. It is argued that conflict generates immediate and long-term shifts in political and economic conditions that, in turn, shape the rebuilding of oncology infrastructure. The documentation of the destruction and reconstruction of local oncology systems is intended to benefit the next generation of cancer care practitioners in the Middle East and other conflict-affected regions areas in their efforts to adapt to conflict and rebuild from the legacies of war.

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<input type="checkbox"/>	179	Beam Pattern Optimization Via Unequal Ascending Clusters <i>Open Access</i>	Abdulqader, A.J., Mohammed, J.R., Mohammad Ali, Y.E.	2023	Journal of Telecommunications and Information Technology 1(2023), pp. 1-7	1
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In this paper, two different architectures based on completely and sectionally clustered arrays are proposed to improve the array patterns. In the wholly clustered arrays, all elements of the ordinary array are divided into multiple unequal ascending clusters. In the sectionally clustered arrays, two types of architectures are proposed by dividing a part of the array into clusters based on the position of specific elements. In the first architecture of sectionally clustered arrays, only those elements that are located on the sides of the array are grouped into unequal ascending clusters, and other elements located in the center are left as individual and unoptimized items (i.e. uniform excitation). In the second architecture, only some of the elements close the center are grouped into unequal ascending clusters, and the side elements were left individually and without optimization. The research proves that the sectionally clustered architecture has many advantages compared to the completely clustered structure, in terms of the complexity of the solution. Simulation results show that PSLR in the side clustered array can be reduced to more than  $-28$  dB for an array of 40 elements. The PSLR was  $-17$  dB in the case of a centrally clustered array, whereas the complexity percentage in the wholly clustered array method was 12.5%, while the same parameter for the partially clustered array method equaled 10%.

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<input type="checkbox"/>	180	LQR CONTROLLER DESIGN FOR STABILIZATION OF NON-LINEAR DIP SYSTEM BASED ON ABC ALGORITHM <i>Open Access</i>	Thanoon, M.A., Awad, S.R., Abdullah, I.K.	2023	Eastern-European Journal of Enterprise Technologies 2(2-122), pp. 36-44	2
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Hide abstract  [Locate full text](#) [Related documents](#)

Inverted pendulum systems, such as double or single, rotational or translational inverted pendulums are non-linear and unstable, which have been the most dominant approaches for control systems. The double inverted pendulum is one kind of a non-linear, unstable system, multivariable, and strong coupling with a wide range of control methods. To model these types of systems, many techniques have been proposed so that motivating researchers to come up with new innovative solutions. The Linear Quadratic Regulator (LQR) controller has been a common controller used in this field. Meanwhile, the Artificial Bee Colony (ABC) technique has become an alternative solution for employing Bee Swarm Intelligence algorithms. The research solutions of the artificial bee colony algorithm in the literature can be beneficial, however, the utilization of discovered sources of food is ineffective. Thus, in this paper, we aim to provide a double inverted pendulum system for stabilization by selecting linear quadratic regulator parameters using a bio-inspired optimization methodology of artificial bee colony and weight matrices Q and R. The results show that when the artificial bee colony algorithm is applied to a linear quadratic regulator controller, it gains the capacity to autonomously tune itself in an online process. To further demonstrate the efficiency and viability of the suggested methodology, simulations have been performed and compared to conventional linear quadratic regulator controllers. The obtained results demonstrate that employing artificial intelligence (AI) together with the proposed controller outperforms the conventional linear quadratic regulator controllers by more than 50 % in transient response and improved time response and stability performance

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<input type="checkbox"/>	181	Sub Chronic Toxicity Study of Coumacines <i>Open Access</i>	Al-Shakarchi, W., Saber, Y., Merkhan, M.M., Mustafa, Y.F.	2023	Pharmacognosy Journal 15(1), pp. 160-164	7
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Coumacine is a brand-new heterocyclic molecular nucleus that was discovered in 2018. In addition to the unique heterocycle known as coumacine, the designer has developed two variants known as coumacine I and II. Coumacine derivatives had been evaluated for their antibacterial effects in vitro against a variety of aerobic and anaerobic bacteria using conventional bacterial strains, using ciprofloxacin and metronidazole as positive controls. The purpose of this research is to look into the relationship between the anticoagulant activity and hepatotoxicity of coumarin and coumacine because the former is a synthetic precursor of the latter and many natural and synthetic coumarins involving warfarin have anticoagulant activity. Thirty male mice were used in this study and exposed to a subchronic dose of 250 or 500 mg/kg of coumacine I or coumacine II. The results of histochemistry showed dramatic changes in hepatocellular morphology that were dose-dependent for both coumacine I and II. Traditionally, higher doses of Coumacine I and II resulted in a significant increase in liver enzymes. Coumacine I or II did no effect on bleeding time. In conclusion, coumacines at subchronic high doses might have hepatotoxic effects through a mechanism that does not affect the coagulation process.

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<input type="checkbox"/>	182	Exploring the impact of psychological factors on cosmetic surgery acceptance: A cross-sectional study <i>Open Access</i>	Mohammed, D.I., Ibrahim, R.H.	2023	Informatics in Medicine Unlocked 39,101231	1
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Background: Client perspectives on cosmetic surgery are often shaped by a combination of social norms, personal experiences, cultural beliefs, media exposure, and individual values. This study aimed to explore and understand the attitudes, beliefs, and motivations of individuals who seek or are considering cosmetic surgery and to identify the factors that influence their decision-making. Methods: A questionnaire was given to all patients at the plastic surgery clinics, and the results were analyzed using the likelihood of having cosmetic surgery scale, the Rosenberg self-esteem scale, the life happiness scale, and the physical attractiveness scale. Pearson's correlation coefficient was used for the investigation of correlations, and a p-value of less than 0.05 was determined to be reliable. Results: The mean age of participants was found to be 33.9 years, with 40.8% male and 59.2% female. The results of the study indicate that there is a statistically significant correlation ( $r = 0.25$ ) between the likelihood of having cosmetic surgery and the Rosenberg self-esteem scale. Additionally, there is a statistically significant correlation ( $r = 0.27$ ) between the likelihood of having cosmetic surgery and the life happiness scale. Lastly, there is a statistically significant correlation ( $r = 0.39$ ) between the likelihood of having cosmetic surgery and the physical attractiveness scale. Conclusion: These results suggest that a person's self-esteem, happiness, and level of physical attractiveness may play a role in their decision to pursue cosmetic surgery.

<input type="checkbox"/>	183	QR Code Encryption for improving Bank information and Confidentiality	Malallah, F.L., Abduljabbar, A.I., Shareef, B.T., Al-Janaby, A.O.	2023	2023 27th International Conference on Information Technology, IT 2023	1
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Hide abstract  [Locate full text](#) [Related documents](#)

Nowadays, storing confidential documents using cloud services is getting popular due to advantages regarding security and fast processing operations. One of the major services of cloud computing is cloud storage, which is conversely raises some issues regarding information security. Storing information for cooperation such as a bank in the cloud needs a fast processing operation to avoid any bottleneck in the work procedure. Therefore, Quick Response (QR) code is highly required to be utilized in these operations. The advantage of the QR code is easier for reading information by just scanning using any reader available on smart devices. The methodology is to integrate the security with QR code to save the text bank information. This is done by converting text to the QR code as an image form, then applying a cryptography algorithm to the QR code image then upload it to the cloud storage. Later on, once the plaintext is required to be reconstructed, the same operations are applied exactly to the encryption phase. In which the same algorithm will be applied for decryption then a QR code reader is used to preview the target bank text. For security matters, a key is used to be embedded in the protection operation. The type of encryption is proposed to be a symmetric One-time-pad (OTP) cryptography algorithm.

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<input type="checkbox"/>	184	Study and Design of A Dual Mode Resonant Band-Pass Filter Suspended Substrate Stripline for 5G Communications   [Badanie i projekt podwójnego trybu rezonansowego filtra środkowoprzepustowego z zawieszoną linią paskową podłoża dla komunikacji 5G]	Abawi, B.M., Luhaid, S.W.O., Sultan, Q.H., Sabaawi, A.M.A.	2023	Przegląd Elektrotechniczny 99(4), pp. 89-93	0
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In this paper, a compact dual-mode bandpass filter suspended stripline is presented. A square-shape resonator with four shorted ground posts was laid on substrate (Roger 5880,  $\epsilon_r=2.2$ ) in the middle of metallic cavity to operate at 5G mobile communications. The internal coupling was achieved by notching the resonator at the place 450 with respect to input and output ports, where the external capacitive coupling was realized by changing the length of input feeder. A 2nd and 4th order bandpass Chebyshev filter are designed and simulated to operate at resonant frequency is 4.8GHz and bandwidth is 100MHz. The simulation results show, the spurious window is about 1.844, the unloaded Q-factor was 1024, the insertion loss was 0.1 dB and the return loss is 17.6 dB.

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<input type="checkbox"/>	185	Design linear array antenna for cellular system   [Projekt anteny liniowej dla systemu komórkowego]	Kanaan, A.E., Ahmed Jaf, S.F.	2023	Przegląd Elektrotechniczny 99(4), pp. 94-97	0
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In this study, a linear array of antenna arrays, including beam scanning, lateral global connections, element designs, and bars, was developed using an antenna toolbox, guidance, and analysis on a 9-cell linear array of half-way wavelength dipoles. It aims to display a linear array model at the angle and central element patterns at the design frequency for 3D and 2D elements. For this study, the resonant dipole will be allocated to a single linear array radiator by selecting a frequency of 1,8 GHz for the design. Disposition at the resonance frequency of isolated dipole tuning. To provide the other parts with a reference impedance for the patterns, every component spirals independently. The effect of the phenomenon should not be determined by the excitement of others but should also be supported by the development of currents for each item in the array. The standardized central element pattern was monitored using standardized 9-dipole linear width management.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 186	DEVELOPMENT OF A CROPPING RESILIENT WATERMARKING SCHEME BASED ON CONTOURLET TRANSFORM FOR SECURE IOT COMMUNICATION <i>Open Access</i>	Idham, Y., Alsaydia, O., Abdullah, M.A.M., Mohammed, A., Elbasi, E.	2023	Eastern-European Journal of Enterprise Technologies 1(2-121), pp. 21-28	0

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The objective of this work is to propose a robust watermarking method as watermarking techniques are widely used today for preventing image altering and duplication. With the growth of image-based IoT applications nowadays, the need for developing robust digital watermarking techniques is of high demand. In this work, a robust yet highly perceptible watermarking scheme is proposed. The proposed scheme is based on the Contourlet Transform (CT) and Singular Value Decomposition (SVD) as the embedding domain in which the high-frequency components are chosen for embedding. The frequency domain is selected in order to make the watermarking scheme resists image attacks as the watermark is spreaded across different frequency bands in the cover image and hence the possibility of altering all the embedded bands is not possible as it will results in destroying the cover image. On the other hand, the Arnold transformation was used to insure secure IOT communication where the Arnold transform is applied to the binary logo watermark before embedding for a more secure design. In this context, the host image has been decomposed into the first level of contourlet transform and the highest frequency sub-bands are selected for embedding after performing the SVD on those bands where the SVD matrix is chosen to be the embedding domain. Moreover, This work aims to resist the cropping attack on images where PSNR values were above 52 dB and NC values ranged from 0.8 to 0.9 under various types of cropping attacks. In addition, the proposed method demonstrates its ability to resist various geometric and noise attacks such as JPEG compression, histogram equalization, gaussian noising and image brightening. Comparisons with state-of-the-art work demonstrate the proposed scheme's efficiency

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 187	Difficulties experienced in clinical learning settings for nurses in Iraq: Perspectives of nursing administrators and nursing instructors <i>Open Access</i>	Attia, Y.K., Ibrahim, R.H.	2023	Informatics in Medicine Unlocked 38,101229	6

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**Objectives:** The study examined the difficulties nurse administrators-instructors experience in clinical education. **Methods:** A descriptive cross-sectional study was conducted in a Nursing College at the 18 Universities in Iraq from 21 September 2022 to 1 December online questionnaire was designed to assess the difficulties of the Clinical Learning Environment (CLE) from the perspectives of both nursing administrators and instructors. It consisted of two parts, with part one consisting of demographic data such as age, gender, university, educational level, and profession. Part two was focused on factors that affect the CLE and included 52 Likert-scale statements, using a 5-point scale; 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree. The statements related to six different CLE dimensions: clinical instructor challenges (8 statements), administration challenges (14 statements), hospital challenges (8 statements), laboratory challenges (5 statements), student-related challenges (10 statements), and organizational challenges (7 statements). **Results:** Descriptive statistics such as frequencies and percentages were used to analyze the data, and the results were displayed in tables. The results showed that the clinical learning environment in Iraq is facing several difficulties, which should be addressed to improve the quality of nursing education. Clinical instructor challenges had the highest frequency, with 106 (49.30%) challenges identified. Administration challenges followed close behind, with 53 (24.02%). Hospital challenges came third with 64 (29.19%), while laboratory challenges had 67 (30.44%). Student-related challenges had a total of 65 (29.12%), and organizational challenges had the lowest frequency, with a total of 33 (15.35%). Correlation tests were applied to identify relationships among the variables. **Conclusion:** Clinical education requires strong cooperation between schools and hospitals. Clear communication and constructive feedback should be established through regular meetings. Students should be adequately prepared for their work with nurses and health care teams through resources such as textbooks, lectures, and practical experience.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 188	VITAMIN E VERSUS PROPOLIS AS AN ADD-ON THERAPY TO SITAGLIPTIN/METFORMIN ON OXIDANT/ANTIOXIDANT STATUS AND LIPID PROFILE IN TYPE 2 DIABETIC PATIENTS <i>Open Access</i>	Dhiala, S., Thanoon, I.A., Fadhil, N.N.	2023	Military Medical Science Letters (Vojenske Zdravotnicke Listy) 92(1), pp. 14-21	1

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The main health care challenges associated with diabetic patients are glycemic control. Insulin deflection has been regarded as the mainstay which needs to be tackled to avoid glucose over presence in the circulatory system. These challenges have always been conjoined with the patient's redox status, hence, oxidants/antioxidants determine the fate of pancreatic tissue status and they are reciprocally interrelated. Various remedies have been utilized by patients themselves and healthcare workers to control hyperglycemia if any. Herbal and pharmacological therapy were always being used hand in hand. Herein, we are demonstrating the antioxidant effect of propolis and its role in modulation of lipid profile in type 2 diabetic patients using vitamin E for comparison in sequential mode i.e. vitamin E used for 8 weeks followed one-week washout period and then propolis therapy started in the same group of patients (n = 45). Thereby a sample of serum has been collected in the first visit (baseline and vitamin E started, followed by collecting serum after 8 weeks (second visit); followed by commencing of propolis after a washout week from the second visit, at the third visit another serum sample collected from all patients. Serum was analyzed for oxidant/antioxidant status represented by malondialdehyde (MDA) and total antioxidant status (TAS). Additionally, lipid profile has been measured from the same samples. The results indicate that both propolis and vitamin E positively modulated the measured parameters with superiority of propolis over vitamin E in improving these measured biomolecules. To conclude, propolis is an overall safe natural product and is inducing such positive effects in the diabetic patient, we do advise these patients to start propolis therapy as an adjuvant medication to control these deleterious biomolecules.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 189	Improved LSB image steganography with high imperceptibility based on cover-stego matching <i>Open Access</i>	Al-Faydi, S.N.M., Ahmed, S.K., Al-Talb, H.N.Y.	2023	IET Image Processing  Article in Press	2

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Information security is an important factor when critical information is transferred. This paper concentrates on finding a method that can hide a message in an image without making any changes to it. The proposed method is novel and based on the Least Significant Bit (LSB) method with a high imperceptibility and capacity. Initially, the secret message bits are compressed using the LZW technique, then the compressed message bits are embedded into the LSB of the edge pixels in the cover image which have the same bit values. As a result, the cover image pixels remain unchanged and the stego image matches the cover image. The addresses of pixels that contain the compressed secret bits are maintained in a file called “location addresses” which the receiver uses to retrieve the compressed secret message. It is possible that the stego image will not be transmitted if it was previously specified by the sender and the receiver. Image quality metrics are applied to several standard images. The obtained PSNR for the stego image is infinity, SSIM and NCC are one, MSE and AD are zero for different embedding capacities in all images, which ensures the stego image's excellent imperceptibility.

<input type="checkbox"/> 190	SMOKING JEOPARDIZED MITOCHONDRIAL FUNCTION VITIATING LIPID PROFILE	Mohammad, R.H., Al Kattan, M.A.	2023	Georgian Medical News 334(1), pp. 49-51	0
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Smoking has increasingly reported as deleterious behavior associated with serious problems, ranging from mood changes to cancer. The basic and common landmark associated with these disorders is derangement of mitochondrial quasi-equilibrium. This study aimed to identify the role of smoking in modulation of lipid profile in the view of mitochondrial dysfunctionality. To do so, smokers were recruited, serum lipid profile, serum pyruvate, and serum lactate were determined to confirm the link between serum lipid profile and smoking induced lactate to pyruvate ratio. The recruited subjects were sub-classified into three groups; G1 includes smokers for up to 5 years, G2 includes smokers for 5-10 years, and G3 includes smokers for more than 10 years alongside the control non-smokers group. The results confirmed that lactate to pyruvate has significantly ( $p < 0.05$ ) increased in smoker groups (G1, G2, G3) compared to control group and smoking has significantly increased LDL and TG with no effects on cholesterol or HDL levels in G1 group alongside minimal or no changes associated with G2 or G3 compared to control group. In conclusion, smoking impacted lipid profile in smokers during initial stages of smoking, however, the effect started to be tolerated with continuous smoking after 5 years with obscure mechanism. Nonetheless, pyruvate/lactate modulation due to restoration of mitochondrial quasi-equilibrium might be the cause. Cigarette cessation campaign should be advocated to ensure smoking-free society.

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<input type="checkbox"/>	191	Factors influencing integration of theory into practice in clinical skills acquisition among nursing students <i>Open Access</i>	Yaseen Fathi, K., Ibrahim, R.H.	2023	Informatics in Medicine Unlocked 37,101181	7
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**Purpose:** This study aimed to investigate the factors influencing the integration of theory into practice in clinical skills acquisition among nursing students in the College of Nursing at the University of Mosul. **Methods:** The methods used in this study included a qualitative study using semi-structured interviews and document analysis. **Results:** The results of the study showed that there were a variety of factors that influenced the integration of theory into practice in clinical skills acquisition, such as lack of adequate resources, lack of proper guidance, and inadequate time for practice. **Conclusion:** The study concluded that providing adequate resources, proper guidance, and sufficient time for practice are essential for successfully integrating of theory into practice in clinical skills acquisition among nursing students.

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<input type="checkbox"/>	192	Knowledge, attitudes, and practice of university's employees about complementary and alternative medicine (CAM) <i>Open Access</i>	Muhammed Taher, M.I., Ibrahim, R.H.	2023	Informatics in Medicine Unlocked 37,101184	0
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Background: The use of natural health products has increased globally. It is important to properly regulate these products to guarantee good quality control, ensure consumers' safety, and integrate them into modern medicine. This study was conducted to identify the prevalence of NHP use among university employees in Nineveh Province, Iraq, along with the employees' awareness, usage patterns, attitudes, and information needs. Method: A cross-sectional study was conducted between 2 October and 6 December 2022 in four main universities (Mosul, Nineveh, Al-Hamdaniya, and Tal-Afar) in Nineveh Province, Iraq. Data were collected face-to-face through an interviewer-administrated structured questionnaire from a multi-stage sampling of employees. Information was gathered using a data collection form and sent to a Microsoft Office Excel® (2010) spreadsheet. Statistical significance was determined using a chi-squared test, with a p-value of less than 0.01 representing a significant finding. Results: Our results showed that (42.2% of the sample used herbal medications. However, we identified a statistically significant correlation between the female gender and herbal medicine use ( $p = 0.001$ ). More than half of those surveyed (56%) felt that herbal medicines might be used to prevent and treat sickness, and 49% felt that they were safe to use. A total of 153 people (37.4%) said they felt comfortable combining herbal remedies with conventional treatments. Females were shown to have more knowledge regarding the origin of herbal medicines than males, and this difference was statistically significant ( $p = 0.05$ ). Further, there was a statistically significant difference between the percentage of those with no medical problems and those with chronic diseases who used herbal medicines ( $p = 0.001$ ). Intriguingly, over half of all respondents ( $n = 204$ ; 49.9%) initially relied on herbal remedies whenever they fell ill, and nearly as many ( $n = 172$ ; 42.1%) did not even check with their doctors before using herbal remedies. Conclusion: When writing prescriptions and delivering medications to patients, doctors, nurses, and pharmacists should take care to inform patients about the effectiveness and adverse effects of herbal medicine (HMs) using evidence-based information. To increase patients' awareness of pharmaceutical use, patient counselling and education are necessary.

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|--------------------------|-----|--|--------------------------------|------|--|---|
| <input type="checkbox"/> | 193 | Simulation and Design of a Dual Mode Square-Shaped Resonant Band-Pass Filter Using Suspended Substrate Strip-line with Transmission Zero Control for 5G Applications | Luhaib, S.W.O.,<br>Abaoy, B.M. | 2023 | International Journal of Microwave and Optical Technology<br>18(1), pp. 7-13 | 0 |
|--------------------------|-----|--|--------------------------------|------|--|---|

A new compact bandpass filter with transmission zero control based on the suspended microstrip dual mode technology is proposed. A square-shaped resonator on Rogers/Duroid 5880 substrate is placed in the middle of a metallic cavity. A new configuration of four posts grounded from the top and bottom of the cavity are placed in the middle of each side of the square resonator to improve the spurious window. A 2nd order bandpass generalized Chebyshev filter is designed and simulated to operate at a resonant frequency of 4.8GHz with a bandwidth of 100MHz, which are suitable for 5G applications. The internal coupling was achieved by exciting the resonator at 450 between two degenerated mode. The results show a two TZs located at the upper and lower side with a good controllability. The spurious window was about 2 and the filter offers a 50% size reduction compared to the traditional suspended microstrip

<input type="checkbox"/>	194	OTFS Waveform Effectiveness in 6G Communication Networks	Ali, D.M., Yahya, Z.Z., Abbosh, Y.M.	2023	International Journal of Microwave and Optical Technology 18(1)	1
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Recently, the Orthogonal Time Frequency Space (OTFS) waveform has been suggested for use in the Fifth Generation (5G) and continues to be used in the Sixth Generation (6G) communication networks. The main feature of OTFS is the utilization of the Delay-Doppler (D-D) domain for symbol representation based on channel geometry. Through the use of the D-D domain, a multipath time-varying fading channel is transformed to a non-fading time-invariant channel (similar to the Additive White Gaussian Noise (AWGN) channel in terms of effects on the signal). The investigation of OTFS waveform is presented in this paper. The main novelty in this study is the utilization of the 6G specifications that have not been used previously. The performance results in terms of Bit Error Rate (BER) successfully accomplished acceptable characteristics for various OTFS design parameters specified for 6G networks. The OTFS BER obtained outperforms OFDM by about 3 dB, and the OTFS Peak to Average Power Ratio (PAPR) is about 1.3 dB lower than OFDM

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 195	Improving the Ability of Persons Identification in a Video Files Based on Hybrid Intelligence Techniques	Thanoon ALkahla, L., Salahaldeen Alneamy, J.	2023	Lecture Notes in Networks and Systems 445, pp. 509-518	0

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With the advancement in technology, the importance of person recognition in photographs or videos has grown due to its usefulness in the search for wanted persons and criminal identification using various theories and algorithms and various non-hybrid and hybrid techniques to identify the person through the face, and its features have been developed. The paper proposed a hybrid algorithm to improve the performance of person identification in video files. The system works through several steps: first, face detection using Viola–Jones algorithm; second, feature extraction by algorithm local binary pattern (LBP); final, person identification by hybrid proposed algorithm (HPBFF) by hybrid between backpropagation neural network and firefly algorithm. The results show that the system was able to identify and monitor the person with a high classification accuracy rate of 98.4%, compared to 94.7% for the approach without the hybrid. The results of the tests revealed that the system is robust and has a high recognition rate, making it suitable for use in mobile and compact identification and authentication.

<input type="checkbox"/> 196	Phased Sub-arrays Pattern Synthesis Method with Deep Sidelobe Reduction and Narrow Beam Width	Mohammed, J.R.	2023	IETE Journal of Research 69(2), pp. 1081-1087	2
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Antenna arrays with low sidelobe patterns and high directivities are very desirable in practice and represent a key success for many communication systems such as radio telescopes, satellites, fifth-generation (5G) wireless communication systems, and high detection radars. To meet these features, a new array pattern synthesis method based on two uniformly sub-arrays controlled by a pre-specified power factor is presented. The proposed method includes the following steps: first, the outputs of those two scanned sub-arrays are added and subtracted to generate the sum and difference patterns, respectively. The sidelobe structures of these two generated patterns are nearly identical, then, an array pattern with greatly reduced sidelobes and narrowed beam width can be obtained by simply subtracting the difference pattern from the sum pattern. Simulation results show that the proposed array pattern with power factor,  $e = 0.5$ , can provide a sidelobe level about  $-32$  dB (i.e. an improvement about  $-19$  dB with compared to that of the corresponding fully uniform array). Moreover, the beam width of the proposed array has been greatly narrowed. Better results can be also obtained by controlling the scanned angles of the two sub-arrays.

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<input type="checkbox"/>	197	Multi-user High Data Rate Indoor VLC Systems	Younus, S.H., Al-Hameed, A.A., Elmirghani, J.M.H.	2023	IETE Journal of Research 69(2), pp. 1056-1069	2
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Hide abstract  [Locate full text](#) [Related documents](#)

In this paper, we propose, design and evaluate the performance of an angle diversity transmitter (ADT) to achieve high data rate multi-user indoor visible light communication (VLC) systems. Our proposed systems are examined with three different receivers: a wide-field of view (W-FOV) receiver, an angle diversity receiver (ADR) and an imaging diversity receiver (IMDR). A novel algorithm is introduced also to eliminate the multi-user interference that is caused by line of sight (LOS) components, since these have a great impact on VLC systems performance. The effect of multi-user interference, mobility and diffuse reflections are considered in this work. We also investigate the effect of an increase in the number of the users on our proposed systems while achieving a high data rate for each user. Our proposed systems achieve 1 Gb/s for ADT with W-FOV receiver, 2 Gb/s for ADT with ADR and 4 Gb/s for ADT with IMDR with a simple modulation technique (on-off-keying, OOK).

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<input type="checkbox"/>	198	Power Control Approach for PV Panel System Based on PSO and INC Optimization Algorithms <i>Open Access</i>	Saadi, S.I., Mohammed, I.K.	2022	Journal Europeen des Systemes Automatistes 55(6), pp. 825-834	3
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The main purpose of this paper is to obtain optimum power from a Photovoltaic (PV) panel and deliver it to a load system under standard irradiance and temperature weather conditions. Standard Boost DC-DC converters and bidirectional Buck-Boost DC-DC converters work as voltage controlling units for the power provided from the PV panel, which is used to charge the battery and supply suitable voltage signal to AC load. MPPT technique, based on two control algorithms, Particle swarm optimization (PSO) and Incremental Conductance (INC), is used to extract maximum power from the solar cells. Matlab/Simulink environment is adopted to simulate the proposed PV power system. Simulation results are presented and analyzed based on transient and steady-state performance parameters. The performance results of the PV array system under the Standard Test Conditions (STC) showed that the INC-MPPT control algorithm can provide a more stable PV transient response, and a good steady-state PV response can be achieved using the PSO-MPPT control algorithm.

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| <input type="checkbox"/> 199 | Performance analysis and evaluation of distance vector and link state routing protocols over a large area networks<br><i>Open Access</i> | Hameed, A.N.,<br>Alabady, S.A.,<br>Thanoon, M.A. | 2022 | Telkomnika<br>(Telecommunication<br>Computing<br>Electronics and<br>Control)<br>20(6), pp. 1189-1199 | 0 |
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Routing protocols are extremely important incredibly significant in data communication and computer networks. The high performance, reliability, stability, and security of the networks depend primarily on choosing the best type of dynamic routing protocol. In this paper, we evaluate and investigate the network performance for routing information protocol (RIP), enhanced interior gateway routing protocol (EIGRP), open shortest path first (OSPF), and intermediate system-to-intermediate system (IS-IS) routing protocols with three different scenarios of routes failure using the optimized network engineering tools (OPNET) simulator to determine which of the protocols is the most appropriate and effective in achieving high network performance. The results show that for large area networks, the EIGRP routing protocol gives the best network performance when all network routers are working with no failing, but when some network routers were failing to work and path failure is happening, the IS-IS link-state routing protocol works efficiently and gives the best performance. The obtained results for IS-IS protocol when failing seven routers is as: the hypertext transfer protocol (HTTP) page response time is (247.8 msec), voice delay variation is (4.19  $\mu$ sec), video delay variation is (8.83  $\mu$ sec) and ping request and response time is (115 msec).

<input type="checkbox"/>	200	Combating Coronavirus Using Resonant Electromagnetic Irradiation <i>Open Access</i>	Sayidmarie, K.H., Mohammed, B., Mohammed, A.J., Abbosh, A.	2022	IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology 6(4), pp. 477-484	0
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The interaction of electromagnetic (EM) waves with the COVID-19 virus is studied to define the frequencies that cause maximum energy absorption by the virus and the power level needed to cause a lethal temperature rise. The full-wave EM simulator is used to model the virus and study the effects of its size and dielectric properties on the absorbed power across a wide range of frequencies. The results confirm potential resonance conditions, where specific frequencies produce maximum absorption and subsequent temperature rise that can destroy the virus. Furthermore, the study confirms that maximum power deposition in the virus occurs at specific wavelengths depending on its size. Also, the simulation is used to find the power required to destroy the virus and determine the total power required to destroy it in an oral activity, such as coughing, made by infected individuals. Furthermore, the study explained why irradiation by UV-C band is effective to decrease virus activity or even eradicate it.

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	<p>The present work investigated numerically, using SCAPS software, the impact of conduction band alignment between the absorber and electron transport layer (ETL) on the perovskite solar cell performance. The conduction band alignment was tailored by inserting an interfacial thin layer between the absorber and ETL. The architecture of the proposed structure consists of CdS as an electron transport layer, MAPbI<sub>3</sub> as an absorber layer, and the spiroOMeTAD as a hole transport layer (HTL). Before inserting the interfacial layer, an adjustment of the doping density of ETL and HTL and the thickness of the perovskite solar layers have been optimized to obtain the best PSC performance. It was found that the best power conversion efficiency of 18 % was obtained at a doping density of 10<sup>22</sup> cm<sup>-3</sup> for ETL and 10<sup>19</sup> cm<sup>-3</sup> for HTL and thickness of 250 nm, 400 nm, and 200 nm for ETL, absorber, and HTL respectively. Individual interfacial layers, with different electron affinities, are sandwiched between the CdS/Perovskite layers to achieve different conduction band alignments. Based on the electron affinity of inserted layer, different structures from spike and cliff in the conduction band alignment were achieved. The results reveal that the inserted interfacial layer improved the solar cell performance when the inserted layer produce a spike-cliff conduction band offset at the absorber-interfacial layer interface and interfacial layer-ETL interface respectively.</p>				

<input type="checkbox"/> 202	Visual health and prevalence of dry eye syndrome among university students in Iraq and Jordan <i>Open Access</i>	Abdulmannan, D.M., Naser, A.Y., Ibrahim, O., (...), Alrawashdeh, H.M., Kautsar, A.P.	2022	BMC Ophthalmology 22(1),265	7
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Dry eye syndrome (DES), is a multifactorial disease that affects the ocular surface and contributes to the ocular symptoms. The COVID-19 pandemic influenced the general population and university students' health in different ways. The pandemic forced many people including university students around the world to use virtual platforms on their digital devices, such as computers and smartphones, to work from a distance. This study aimed to explore the visual health and prevalence of dry eye syndrome among university students in Iraq and Jordan. This was a cross-sectional study that was conducted in Iraq and Jordan using online questionnaire tool for the duration between November 2021 and January 2022. University students in Jordan and Iraq were invited to participate in this study and formed the study population. No restrictions on study level or field of study were applied. A previously developed and validated questionnaire tools were used in this study (National Eye Institute Visual Functioning Questionnaire – 25 (VFQ-25) and the Women's Health Study Questionnaire (WHS), which was developed by Schaumberg et al.). A total of 1,431 university students were involved in this study (1,018 students from Iraq, 71.1%). Around one third the study participants (29.0%) reported that have been diagnosed by a clinician as having dry eye syndrome. Around 15.3% of the total study participants reported that they feel their eyes are dry (not wet enough) and 17.3% reported that they feel their eyes are irritated. Based on Women's Health Study Questionnaire (WHS) criteria, a total of 479 participants (33.4%) are symptomatically diagnosed with DES. Students aged 27–29 years, those at their fifth year of study, and those who wear contact lenses are at higher risk of developing DYS compared to others. Dry eye syndrome is common health problem among university students. Further studies are required to identify other risk factors associated with DES. Future research should focus on identifying strategies that could help reduce the risk of developing DES as a result of the inevitability of long-term use of digital devices among many categories of society, including university students.

<input type="checkbox"/> 203	FREQUENCY OF PLACENTA ACCRETA SPECTRUM DISORDERS IN NINEVAH PROVINCE HOSPITALS: A HISTOLOGIC STUDY	Al-Allaf, L.I.K., Aziz, Z.W.	2022	Georgian Medical News 332(11), pp. 6-11	1
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Objectives: To provide a view on the frequency, and the risk factors of placenta accreta spectrum disorders (PAS) in Nineveh Province, and to assess the morphological alterations associated with these disorders. Subjects and methods: A prospective and retrospective cross-sectional study was carried out on paraffinized blocks of 19 females, with gestational age  $\geq 32$  weeks, presented with peripartum haemorrhage and subjected to emergency hysterectomy at Maternity Teaching Hospitals, Nineveh Province, North of Iraq. Clinical data, including the mother's age and obstetrics history, were recorded when available. All cases were examined for the presence or absence of histological invasion of placentas supported by immunohistochemistry. Results: The mean age of cases was  $34.4 \pm 1.6$  years by the dominance of the fourth decade. The mean gestational age at the time of diagnosis was  $35.6 \pm 0.8$  weeks. The PAS frequency was increasing and reaching up to 1.18 per 1000 live birth. About 60% of the cases gave a history of previous Cesarean section with or without a concomitant placenta previa. According to light microscopic examination, placenta accreta spectrum disorders were identified in 12(63.1%) cases. The immune expression of cytokeratin was significantly correlated with placental invasion, ( $p=0.001$ ). Conclusion: The present study reveals an increase in the frequency of abnormal placentation in Nineveh Province. These disorders have well-known predisposing factors. The histopathological findings, other than interface decidual loss, may explain the abnormality in placental tissue implantation.

204 Adverse reactions of different COVID-19 vaccines among healthcare professionals: A qualitative study in Mosul, Iraq *Open Access* Khaleel, S.M., Shanshal, S.A., Aladul, M.I. 2022 Clinical Epidemiology and Global Health 18,101175 0

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Background: COVID-19 disease was highly infectious causing a declaration of a global pandemic and the scientists believed that developing a safe and effective vaccine was the solution. Various vaccine candidates were announced by different health authorities. Many factors affect the acceptance of vaccines. This study aims to explore the perceptions, attitudes, and expectations of healthcare professionals (HCPs) toward COVID-19 vaccines. Method: A qualitative study approach was conducted by using face-to-face semi-structured interviews with HCPs in Mosul city, Iraq. Results: Twenty-five HCPs participated in the interviews. After qualitative analysis four main themes emerged: perception of vaccines; participants believed that vaccines were vital inventions, motivations to take the vaccine; most HCPs were motivated based on the scientific evidence regarding COVID-19 vaccines, expectations about the safety and efficacy of COVID-19 vaccines; participants had different opinions based on the type of the vaccine and the available data, side effects experienced; severe side effects were expected but only mild adverse reactions were experienced by the majority. Conclusion: HCPs had good knowledge about COVID-19 vaccines which was not affected by rumors and misinformation. In contrast to their expectations, the experienced side effects of the first and the second doses were mild to moderate in severity. The majority of HCPs based their choice of the vaccine on the efficacy and safety profile of the available options.

205 Optimal Control Approach for Robot System Using LQG Technique Mohammed, I.K., Noaman, M.N. 2022 Journal European des Systemes Automatistes 55(5), pp. 671-677 2

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A two-wheeled self-balancing robot system bases on the physical problem of an inverted pendulum. Stabilization of this type of mobile robot requires applying an active control approach. This paper proposes an efficient Linear Quadratic Gaussian (LQG) optimal control for the two-wheeled robot system. The LQG (a combination of a Kalman Filter (KF) and Linear Quadratic Regulator (LQR)) controller is designed to stabilize the robot while reducing the effect of the process and measurement noises on its performance. The LQG controller parameters (elements of state and control weighting matrices of the LQR and KF) are optimally nined using the Particle Swarm Optimization (PSO) optimization method. The robot stabilization scheme is simulated utilizing MATLAB software to validate the proposed PSO-LQG controller system. The effectiveness of the proposed controller is validated based on the control criteria parameters, which are rise time, settling time, maximum overshoot, and steady-state error. The results prove that the proposed PSO-LQG controller can give very good movement performance in terms of both transient and steady-state responses.

<input type="checkbox"/> 206	COMPARISON OF BONE MATURATION RESPONSE TO TREATMENT WITH SHORT AND LONG-TERM GROWTH HORMONE THERAPY IN SHORT- STATURE PEDIATRIC PATIENTS	Mustafa, B.Sh., Shareef, A.A., Mahmood, M.D.	2022	Georgian Medical News 331(10), pp. 27-30	1
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Growth hormone deficiency is one of the major causes of short stature in children. It has been noted that hormonal treatment can be vindicated in short-stature children unless there are contraindications. This study aimed to investigate the impact of rhGH therapy duration on the increase of subjects' height at the end of therapy. Materials and methods: A retrospective longitudinal study of children diagnosed with short stature was followed. Participants aged between 5 and 15 years old who had their GH stimulation test done were included in the study. Collected data were patients' age, gender, rhGH therapy duration and height (cm) at presentation and the end of therapy. GH stimulation test readings and bone age were also gathered. Results: 129 children aged between 5-15 years of both gender were included in the study. They were grouped into three groups according to the duration of the received GH therapy: an 8-month group (n=25), a 14-month group (n=59) and 22-month group (n=45). No significant difference between males and females in regards to bone age, but the readings significantly increased with the increase in therapy duration ( $p < 0.05$ ). Growth hormone assay results were conversely reduced with the increase in GH therapy duration, with no significant difference between the two genders. Interestingly, an increase in the participant's height in the three treatment groups both males and females were reported. Overall, the increase in height was 7.08 cm, 12.58 cm and 20.84 cm in 8, 14 and 22-month groups ( $\pm 1.6, 3.3$  and  $4.3$ ), respectively, a significant statistical difference between the three groups ( $p$ -value  $< 0.05$ ). This study provides evidence of the effect of long-term 22-month rhGH therapy on bone age and body height both in male and female children. Further prospective studies are required to assess the effect of the GH stimulation test on GH therapy.

207 The reliability of TIRADS classification in predicting thyroid malignancy based on ultrasound findings in Mosul city  
*Open Access*

Ahmed, A.W.,  
Attash, S.M., Zacki  
Al Saaty, M.H.M.

2022 Biomedicine (India)  
42(4), pp. 793-798

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Introduction and Aim: Ultrasound of the thyroid gland is a routine procedure. Nodules are the most common disorders seen and analyzed by ultrasound. The study purpose was to show how accurate ultrasonography was at identifying benign from malignant nodules using (Thyroid Imaging Reporting and Data System TIRADS) categories. High-frequency ultrasonography scanning of the neck and thyroid glands offers useful information and anatomical images. Materials and Methods: This study involved 495 patients who were subjected to a thyroid ultrasound imaging from December 2019 to December 2020. The ultrasound and evaluation was performed by a professional Radiologist by means of a transducer with linear-array (between 5-12 MHz) (DC-30, Shenzhen Mindray Bio-Medical Electronics Co., Ltd). Nodules detected were evaluated for composition, echogenicity, boundary, shape and echogenic foci. Each attribute was recorded using the standardized scoring system provided by the ACR Thyroid Imaging Reporting and Data System (ACR TI-RADS). The scores obtained, were used in classifying the nodules as TI-RADS 1, 2, 3, 4a, 4b, and 5 to define risk levels of malignant nodule. Results: TIRADS approach was used to assess the thyroid ultrasound data obtained and the nodules categorized created on ultrasound features such as irregular edges, shape, tall rather wide, hypo echogenic, calcified, and vascular. The TIRAD 3 category was the most common accounting for about 251 cases (52.73 percent of the calculated diagnostic results, which included specificity (50%), sensitivity (96.59%), positive (97.21%) and negative (55.17%) predictive values. The study revealed 26 (4.25%) of the nodules to be cancerous. Conclusion: Since the TIRADS system of categorization is a good technique for predicting malignancies in thyroid nodules, we employ ultrasound as the first diagnostic tool for efficiently finding and classifying thyroid nodules.

<input type="checkbox"/> 208	A New Approach of Applying Chebyshev Distribution of Series Fed Microstrip Antenna Array for Radar Applications <i>Open Access</i>	Salim, M.S., Najm, T.A., Sultan, Q.H., Saleh, A.M.	2022	Applied Computational Electromagnetics Society Journal 37(9), pp. 933-940	0
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In this paper a new method of applying Chebyshev distribution for series fed antenna array was proposed for radar applications. The first part of this study consists of applying the proposed method on antenna arrays working at 2.3 GHz (S-band radar applications) with 6, 8, 10, 14, and 28 elements, whereas the second part of the study is applying the method on antenna arrays working at 5.2 GHz (C-band radar applications) with the same number of elements. The achieved sidelob level is around (19.6- 24 dB).The obtained antenna gain is around (10-17.4 dB) depending on the number of elements. Whereas the horizontal half-power beam width is around ( $7^\circ - 20^\circ$ ).

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| <input type="checkbox"/> 209 Lithological Variations and Facies Analysis of the Lower Part of the Bekhme Formation in Specific Outcrops from Dohuk Area, Northern Iraq<br><i>Open Access</i> | Al-Shireedah, W.M., Al-Ghrear, J.S. | 2022 | Iraqi National Journal of Earth Science<br>22(2), pp. 105-120 | 0        |

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The present study concerns the sedimentology of the lower part of the Bekhme Formation at the Bekhair anticline, Dohuk area, northern Iraq. This part shows a high spectrum of lithological and petrographical variations of allochthonous and autochthonous carbonate sediments. Accordingly, the formation is divided into three facies 1. Random clasts Carbonate Megabreccia. 2. Planktonic Foraminiferal Wackestone. 3. Rounded Clasts Intraformational Carbonate Conglomerate. The facies analysis and their deposition mechanism suggest that the area's deposit environment represents a carbonate slope, which was affected by local tectonism of syndepositional normal faulting. The architectural analysis of the sedimentary environment shows that this fault had affected the facies directly, giving considerable variation in the sedimentary environment (depth, oxygen percent, and bioactivity). These variations are reflected in the carbonate rock types, sedimentary structures, and early diagenetic processes. The constructed sedimentological model for the basin in this particular environment proposed that this syndepositional normal fault was directly responsible for the type of carbonate rocks at the lower part of the formation (the older three facies), and this is reflected by increases in the angle of carbonate slope and also increasing of carbonate sediments mobility towards the half-graben made by the fault. The Bekhme Formation represents part of the main mega sequence (AP9). Within the Late Campanian – Maastrichtian age, this period is characterized by local subsidence caused by secondary normal faults, which are responsible for the formation of the secondary basin. The proposed fault in this study is one of these faults.

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<input type="checkbox"/>	210	Artificial Sweeteners Perturbed Liver Enzymes in Rat Model <i>Open Access</i>	Dawood, M.N., Jassim, S.A.H., Fadel, M.A., Thanoon, I.A.	2022	Pharmacognosy Journal 14(5), pp. 553-557	3
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In the recent time there has been an increased demand of low-fat or low calorie diet universally. In the mean while the availability of low calorie products has also increased like sugar free drinks, beverages, biscuits, jams and jellies. On contrary to this, some studies suggest that the prolong use of non-nutritive sweeteners alters the homeostasis of glucose and insulin. It results in fluctuation of glucose level in blood and increase in bodyweight. This study intends to evaluate the effect of non-nutritive sweeteners on the liver function test and record the alteration in the levels of ALP, AST and ALT. Seventy rats were divided into seven equal groups, controlled group received distilled water and the rest six were given NNS Sucrose, Stevia, Sucralose, Saccharine Aspartame and Acesulfame-k, respectively. On the evaluation of Alanine aminotransferase ALT, saccharine and aspartame markedly increased the level of ALT from 40U/L to 80 U/L. Both of these NNS have shown the most raised level of Alanine aminotransferase. This represents the stress on the liver associated with the use of NNS and suggests the use to be controlled in humans.

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<input type="checkbox"/>	211	Nasal In-situ Gel of Inert Cellulose for Allergic Rhinitis	Alkotaji, M., Ismail, S.T., Alnori, H.	2022	Tropical Journal of Natural Product Research 6(9), pp. 1414-1419	0
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Allergic rhinitis is a very common disease that is treated with a variety of systemic and locally applied drugs. The advantage of nasal route of avoiding the systemic side effect of drug is outweighed by the low effectiveness of the intranasal formulations due to the rapid cleaning mechanisms of the nose. This work aims to produce nasal in-situ gel using hydroxypropyl methyl cellulose (HPMC) as the active ingredient. HPMC is an inert cellulosic material that will provide a natural barrier against the allergens and will aid in treatment and preventing the allergic rhinitis. In addition, a pH sensitive polymer (Carbopol) had been added to this formula, to provide in-situ gelling of the solution upon contact with nasal mucosa. In this work, two concentrations of HPMC (namely 0.8% and 1.6%) have been studied. All the prepared formulas were characterized by different techniques. In addition, the muco-adhesiveness, the in-vivo retention time and the safety of the selected formula were studied. Results indicated that hydroxypropyl methyl cellulose in-situ gel can be produced with very good characteristics using 1.6% HPMC with 0.9% carbopol. The in-vitro study confirmed the moderate gelling capacity with high muco-adhesiveness. This is supported by the in-vivo retention time study which is conducted on live sheep and the recorded retention time was prolonged. The histopathology study confirmed the absence of any toxic or necrotic effect on nasal tissue. To conclude, this study succeeded in formulating a new promising, comfortable and safe treatment of allergic rhinitis.

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<input type="checkbox"/>	212	Interference mitigation in multiuser WDM VLC systems using differential receiver	Younus, S.H.	2022	Transactions on Emerging Telecommunications Technologies 33(9),e4512	5
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To eliminate the interference between wavelength division multiplexing (WDM) channels in multiuser visible light communication systems, we proposed a differential detection. Four colors laser diodes are utilized as transmitters (Tx). Three colors (channels) are used to send the data and one color is used to convey a control signal in each Tx. The control signal is applied to find the best Tx for each user and to find the level of interference of each WDM data channel. The optical receiver has six photodetectors (PDs). Three PDs receive the data and three PDs receiver control signals. Each optical receiver has three differential amplifiers. The input of each differential amplifier is the difference between the output of two PDs (one PD captures the data and interfering signals and one PD captures control signals). Thus, the amount of the interference that is calculated by the control signals of each color will be removed from each WDM data signal by the differential amplifier. Six users are assumed in our proposed system and each user is allocated one Tx. In this work, reflections up to the third order and mobility of the user are considered while using a simple wide field of view receiver.

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| <input type="checkbox"/> | 213 | Design of a CMOS memristor emulator-based, self-adaptive spiking analog-to-digital data conversion as the lowest level of a self-x hierarchy<br><i>Open Access</i> | Abd, H., König, A. | 2022 | Journal of Sensors and Sensor Systems<br>11(2), pp. 233-262 | 1 |
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The number of sensors used in modern devices is rapidly increasing, and the interaction with sensors demands analog-to-digital data conversion (ADC). A conventional ADC in leading-edge technologies faces many issues due to signal swings, manufacturing deviations, noise, etc. Designers of ADCs are moving to the time domain and digital designs techniques to deal with these issues. This work pursues a novel self-adaptive spiking neural ADC (SN-ADC) design with promising features, e.g., technology scaling issues, low-voltage operation, low power, and noise-robust conditioning. The SN-ADC uses spike time to carry the information. Therefore, it can be effectively translated to aggressive new technologies to implement reliable advanced sensory electronic systems. The SN-ADC supports self-x (self-calibration, self-optimization, and self-healing) and machine learning required for the internet of things (IoT) and Industry 4.0. We have designed the main part of SN-ADC, which is an adaptive spike-to-digital converter (ASDC). The ASDC is based on a self-adaptive complementary metal-oxide-semiconductor (CMOS) memristor. It mimics the functionality of biological synapses, long-term plasticity, and short-term plasticity. The key advantage of our design is the entirely local unsupervised adaptation scheme. The adaptation scheme consists of two hierarchical layers; the first layer is self-adapted, and the second layer is manually treated in this work. In our previous work, the adaptation process is based on 96 variables. Therefore, it requires considerable adaptation time to correct the synapses' weight. This paper proposes a novel self-adaptive scheme to reduce the number of variables to only four and has better adaptation capability with less delay time than our previous implementation. The maximum adaptation times of our previous work and this work are 15h and 27min vs. 1min and 47.3s. The current winner-take-all (WTA) circuits have issues, a high-cost design, and no identifying the close spikes. Therefore, a novel WTA circuit with memory is proposed. It used 352 transistors for 16 inputs and can process spikes with a minimum time difference of 3ns. The ASDC has been tested under static and dynamic variations. The nominal values of the SN-ADC parameters' number of missing codes (NOMCs), integral non-linearity (INL), and differential non-linearity (DNL) are no missing code, 0.4 and 0.22LSB, respectively, where LSB stands for the least significant bit. However, these values are degraded due to the dynamic and static deviation with maximum simulated change equal to 0.88 and 4LSB and 6 codes for DNL, INL, and NOMC, respectively. The adaptation

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	214 Design of a Linear Quadratic Regulator Based on Genetic Model Reference Adaptive Control <i>Open Access</i>	Abdullah, A.I., Mahmood, A., Thanoon, M.A.	2022	Journal of Automation, Mobile Robotics and Intelligent Systems 16(3), pp. 75-81	0

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The conventional control system is a controller that controls or regulates the dynamics of any other process. From time to time, a conventional control system may not behave appropriately online; this is because of many factors like a variation in the dynamics of the process itself, unexpected changes in the environment, or even undefined parameters of the system model. To overcome this problem, we have designed and implemented an adaptive controller. This paper discusses the design of a controller for a ball and beam system with Genetic Model Reference Adaptive Control (GMRAC) for an adaptive mechanism with the MIT rule. Parameter adjustment (selection) should occur using optimization methods to obtain an optimal performance, so the genetic algorithm (GA) will be used as an optimization method to obtain the optimum values for these parameters. The Linear Quadratic Regulator (LQR) controller will be used as it is one of the most popular controllers. The performance of the proposed controller with the ball and beam system will be carried out with MATLAB Simulink in order to evaluate its effectiveness. The results show satisfactory performance where the position of the ball tracks the desired model reference.

<input type="checkbox"/>	215 The Protective Effect of N-acetyl Cysteine on Mitochondrial Copy Number of Salivary Glands after Induction of Oxidative Stress in Albino Rats <i>Open Access</i>	Thanoon, S.I., Taqa, G.A., Alkataan, M.A.	2022	Egyptian Journal of Veterinary Science(Egypt) 53(3), pp. 391-402	2
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Background: Oxidative stress is defined as condition when reactive oxidative species generation exceed the physiological level, and overcome the antioxidant capacity which lead to biomolecules damage, excessive peroxidation of lipid, damage of DNA strands, impairs gene expression, mitochondrial dysfunction and play a main role in the pathophysiology of many diseases. Aim of the study: This study was aimed to investigate protective role of N-acetyl cysteine (NAC) as antioxidant on mitochondrial gene expression and copy number against oxidative stress damage in salivary glands Material and Methods: Forty adult male albino rats were used in this study. Animals were divided into 4 groups: Group1 (Control negative, n=10): Normal diet and tap water for drinking intraperitoneally for 4weeks. Group2: (Control positive, H2O2) (n=10) normal diet and drinking water contain 0.5% H2O2 daily to induce oxidative stress for 4weeks. Group3: N-acetyl cysteine (NAC, n=10) normal diet and tap water for drinking injected daily with NAC 150 mg /kg (i.p.) For 4weeks. Group4: (Protected group) (NAC+H2O2) (n=10) normal diet and drinking water contain 0.5% H2O2 daily to induce oxidative stress, injected daily with NAC 150 mg. /kg (i.p.) for 4weeks. Tissues were collected after 4 weeks of experiment, all animal groups were euthanized and salivary glands were removed for genomic and histopathologic study. Result: The results showed that oxidative stress induced by H2O2 cause significant reduction in the mitochondrial copy number in salivary gland tissue and induce severe necrosis and degeneration in control positive group while protected group with NAC showed no significant changes in mitochondrial copy number and no necrosis or degeneration in salivary gland tissue Conclusion: N-acetyl cysteine protects the mitochondrial copy number of salivary glands from reduction by oxidative stress and prevents histopathological changes.

<input type="checkbox"/>	216	Fractal Sectoral Monopole Antenna for UWB Band Applications <i>Open Access</i>	Majeed, A.H., Sayidmarie, K.H.	2022	Applied Computational Electromagnetics Society Journal 37(8), pp. 912-920	1
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This paper proposes a fractal monopole antenna based on a sectoral-shaped patch. To improve the gain of the proposed antenna over a larger bandwidth, the matching was enhanced by attaching two rectangular stubs to the feeding line. The antenna, which is built on an FR4 epoxy substrate with  $\epsilon_r = 4.3$  and a loss tangent of 0.018 has a compact size of 28 mm×31 mm×1.6 mm. The antenna covers the UWB range and extends to about the 22 GHz frequency, as well as offers omnidirectional radiation patterns. The optimized configuration was fabricated and tested. The impedance bandwidth of the proposed antenna is about 155% with a reflection coefficient better than  $-10$  dB and has a maximum gain of nearly 4 dBi with a relatively stable omnidirectional radiation pattern.

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| <input type="checkbox"/> | 217 | Construction of General Implicit-Block Method with Three-Points for Solving Seventh-Order Ordinary Differential Equations<br><i>Open Access</i> | Turki, M.Y., Salih, M.M., Mechee, M.S. | 2022 | Symmetry<br>14(8),1605 | 0 |
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In order to solve general seventh-order ordinary differential equations (ODEs), this study will develop an implicit block method with three points of the form (Formula presented.) (Formula presented.) directly. The general implicit block method with Hermite interpolation in three points (GIBM3P) has been derived to solve general seventh-order initial value problems (IVPs) using the basic functions of Hermite interpolating polynomials. A block multi-step method is constructed to be suitable with the numerical approximation at three points. However, the construction of the new method has been presented while the numerical results of the implementations are used to prove the efficiency and the accuracy of the proposed method which compared with the RK and RKM numerical methods together to analytical method. We established the characteristics of the proposed method, including order and zero-stability. Applications of various IVP problems are also discussed, and the outcomes are very encouraging for the suggested approach. The proposed GIBM3P method yields more accurate numerical solutions to the test problems than the existing RK method, which are in good agreement with analytical and RKM method solutions.

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| <input type="checkbox"/> | 218 | Obtaining Feasible Minimum Side Lobe Level for Narrow Beam Width Using Convex Optimization in Linear, Planar, and Random Antenna Arrays<br><i>Open Access</i> | Shaker, R.R.,<br>Mohammed, J.R. | 2022 | Applied Computational Electromagnetics Society Journal<br>37(7), pp. 811-816 | 1 |
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In many applications, the radiating elements of the used antenna may be configured in the form of a one-dimensional linear array, or two-dimensional planar array or even random array. In such applications, a simple optimization algorithm is highly needed to optimally determine the excitation amplitudes and phases of the array elements to maximize the system's performance. This paper uses a convex optimization instead of other complex global stochastic optimizations to synthesize a linear, planar, and random array patterns under prespecified constraint conditions. These constraints could be either fixed beam width with the lowest possible sidelobe levels or fixed sidelobe level with narrower possible beam width. Two approaches for array pattern optimization have been considered. The first one deals with the problem of obtaining a feasible minimum sidelobe level for a given beam width, while the second one tries to obtain a feasible minimum beam width pattern for a given sidelobe level. Both optimization approaches were applied to the linear, planar, and random arrays. Simulation results verified the effectiveness of both optimization approaches and for all considered array configurations.

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<input type="checkbox"/>	219	RELATIONSHIP BETWEEN SOME INFLAMMATORY MARKERS AND BACTERIAL INFECTIONS AMONG COVID-19 PATIENTS	Al-Sultan, S.A.S.H., Abdulhameed, I.A., Yonis, S.F., Thanoon, Y.H.	2022	Georgian Medical News 328-329(7-8), pp. 75-80	0
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Fifty blood samples were collected from patients who were confirmed to have COVID-19 by conducting a diagnostic test using real-time RT-PCR for the direct qualitative detection of the Coronavirus when the patients attended the private clinics at Al Rabeea Private Hospital in Mosul for the period from the beginning of March to the end of May 2021. The patients' ages range from 17-59 years, with 23 males (46%), and 27 females (54%). The blood samples were taken before giving any type of treatment for blood culture, biochemical, and immunological tests. Bacteremia is investigated to determine the types of bacteria that cause bacteremia, biochemical tests such as D-dimer, S. Ferritin, CRP, Protein S, Protein C, FBS, LDH, Blood Urea, Serum Creatinine, SGOT & SGPT, and immunological tests such as blood group, IgG & IgM, IL-1B, IL-6, TNF- $\alpha$  alpha, ASOT, ESR, C3, and C4. In this study, the relationship between bacteremia and the types of biomarkers used is determined in addition to the relationship of bacteremia to the patient's age, sex, SPO2, and body temperature. More accurate comparison is also accomplished in cases of bacteremia by adopting the types of bacteria isolated if they were gram-positive or gram-negative. The results of this study show an increase in the severity of COVID-19 disease caused by a secondary bacterial infection. This is determined by measuring several biomarkers used in this study and also by performing bacteriological tests to document bacteremia by blood culture. Also, these results can be adopted in future studies concentrating on the molecular level to determine the genetic changes associated with viral infection with or without secondary bacterial infection to develop an effective treatment protocol.

<input type="checkbox"/>	220	Simplified Adaptive Interference Suppression Methods Based on Subarray Configurations for 5G Applications	Mohammed, J.R., Mohammed, R.B.	2022	International Journal of Microwave and Optical Technology 17(4), pp. 331-338	0
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Adaptive antenna arrays is one of the most promising solutions for interference suppression in the crowded spectrum environment of the wireless communication systems such as 5G and beyond where they are efficiently capable to steer their main beams and nulls toward desired directions and interfering signals respectively. However, some difficulties can be raised when it comes to practical implementation of these arrays such as a high complexity weighting network due to deployment a large number of the adaptive controllers which result in a low convergence speed. The main goal of this paper is to introduce various new array configurations to simplify the weighting network and at the same time to reduce the convergence speed of the adaptive algorithm while maintaining a satisfactory array performance. The proposed configurations include regular adaptive subarray, partially adaptive array elements, and partially adaptive irregular subarray. These array weightings are performed directly during the adaptation process, which are different from any other existing techniques. Simulation results fully illustrated the advantages and the effectiveness of the proposed array weighting configurations in terms of faster convergence speed, better interference suppression, and simpler weighting networks.

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<input type="checkbox"/>	221	Performance Enhancement of the OWC by Optimizing the FOV of the Optical Receiver	Younus, R.M., Younus, S.H., Al Zubaidy, M.A.	2022	International Journal of Microwave and Optical Technology 17(4), pp. 442-453	0
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In optical wireless communication (OWC) systems, multipath propagation and directional noise from ambient light sources are the most important factors that lead to degraded system performance. The receiver's field of view (FOV) is explored in this study to lessen the influence of multipath propagation and ambient noise. Our suggestion intends to increase the system's performance while keeping its simplicity and low cost. This exploration includes a decrease in the angle FOV, and the result of each change is depicted. It is noted with the decrease in FOV the results improved due to the gain of the concentrator leading to improving the 3-dB channel bandwidth, minimizing the influence of inter-symbol interference (ISI), and increasing the signal-to-noise ratio (SNR). To investigate the performance of the OWC system, we use a room that has dimensions (5m,5m,3m), in which the transmitter is located in the center of the room and on the communication floor (1m), with 100 reception positions chosen at random to give an overview of the system's performance. The area of the photodetector is chosen as small (10mm<sup>2</sup>) to increase BW. To evaluate the performance of the proposed system, we employ the cumulative distribution function (CDF) and MATLAB software. While assuming many values of the FOV of the receiver (FOV = 90°, FOV = 60°, FOV = 30°, and FOV = 10°). We consider the effect of reflections (up to 2nd reflections), the effect of the mobility, and the effect of the noise in this work. The result depicts that reducing the FOV of the optical receiver to 10° leads to enhancing the OWC system's performance

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<input type="checkbox"/>	222	DESIGN AND OPTIMIZATION OF 0.18 $\mu$ m CMOS TRANSIMPEDANCE AMPLIFIER FOR 20 Gb/s OPTICAL COMMUNICATIONS USING GENETIC ALGORITHMS	Abdo, E.A., Muttalak, S.G., Sabaawi, A.M.A., Missous, M.	2022	Journal of Engineering Science and Technology 17(3), pp. 2157-2175	0
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A comprehensive study focusing on the design and optimization of a single stage transimpedance front-end amplifier (TIA) for over 20 Gb/s optical system applications is presented in this paper. The work involves characterizing the most important parameters of the TIA circuit such as frequency bandwidth, transimpedance gain, input referred noise current, group delay and DC power consumption. An optimization procedure exploiting genetic algorithms (GA) technique is employed to improve the TIA performance, obtaining the optimal transistor geometry, which has then led to maximizing the amplifier bandwidth without sacrificing the IRN and group delay parameters. To this end, several multi-objective function formulations are used as fitness function. The simulation results showed that the formulation of the fitness function taking the transistor's transconductance ( $g_m$ ) and the bandwidth at -3 dB (BW<sub>3dB</sub>) into account provides a significant performance. The achieved BW<sub>3dB</sub> value, DC power consumption and input referred noise current were 15.7 GHz, 4.6 mW and 9.7 pA/ $\sqrt{\text{Hz}}$ , respectively, which are promising compared with the state of the art. A MATLAB environment for the genetic algorithm implementation is utilized along with a radio frequency based advanced design system (ADS) software for the 0.18  $\mu\text{m}$  CMOS transimpedance technology simulation.

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<input type="checkbox"/>	223	Traffic sign recognition based color model <i>Open Access</i>	Yunus, M.D., Al-Sabawi, E.A.	2022	Indonesian Journal of Electrical Engineering and Computer Science 26(3), pp. 1495-1501	0
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The main problems that encounter the traffic light detection algorithm have become a handicap to the performance of the algorithms. Problems associated with the change of sign color due to bad weather and illumination changes of sunlight make the detection hard task. In the current work, we discuss these problems and propose a new idea of an efficient real time color sign recognition that relies only on color information. The proposed approach is based on building a red-model in hypothetical red, green, blue (RGB) cube using a large database of traffic signs. The segmentation has been implemented on the traffic signs that hold red color only as an example to illustrate the proposed approach. Results showed that the proposed algorithm is accurate as well as the computational cost is reduced.

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| <input type="checkbox"/> | 224 | Diagnostic accuracy of haematoxylin-eosin staining in comparison to calretinin and S100 for the assessment of ganglion cells in rectal biopsy<br><i>Open Access</i> | Aziz, Z.W., Al Hajar, B.K., Al Hajar, Z.A.A., (...), Jawher, N.M.T., Muhammad, R.K. | 2022 | Journal of the Pakistan Medical Association<br>72(6), pp. 1123-1127 | 1 |
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Objectives: To assess the diagnostic accuracy of haematoxylin-eosin staining in clinically suspected Hirschsprung disease, and to compare the findings with calretinin and S100 immunohistochemistry. Method: The retrospective study was conducted at the AL-Khansaa Teaching Hospital, Nineveh, Iraq, and comprised data from January 2017 to October 2020 of rectal suction biopsies of patients with clinically and radiologically suspected Hirschsprung disease. Histopathology and immunohistochemistry were performed. Data was analysed using SPSS 16. Results: Of the 114 patients, 74(64.9%) were males and 40(35.1%) were females. Based on histology, 28(24.6%) cases were negative for ganglion cells, and, of them 25(89.2%) revealed nerve bundle hypertrophy. The diagnostic accuracy for the detection of ganglion cell and nerve hypertrophy using haematoxylin-eosin stain was 99.1% and 94.4%, respectively. Correlation of haematoxylin-eosin staining with calretinin and S100 was statistically near perfection ( $\kappa=0.976$  and  $\kappa=0.923$ ), respectively. Conclusion: The mainstay to confirm or exclude Hirschsprung disease remains an accurate histopathological evaluation of the haematoxylin-eosin-stained sections of an adequate colorectal biopsy.

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<input type="checkbox"/>	225	Intelligent university timetable scheduling system using sudoku grid with magic square <i>Open Access</i>	Alkallak, I.N., Shaban, R.Z., Alnema, Y.H.S.	2022	Bulletin of Electrical Engineering and Informatics 11(3), pp. 1526-1534	0
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Examination timetabling is a problem faced by many academic educational institutions. The situation is formulated as an artificial intelligence problem as a Sudoku grid with a Magic square. The problem is assigning a set of examinations to a fixed number of examination periods so that no student is required to take more than one examination at a time. The research describes two proposed heuristic algorithms to create university examination timetabling and avoid the overlapping of exams. We proposed two algorithms, the first algorithm is based on a Sudoku grid, a number of hard constraints as well as a number of soft constraints are proposed. We assigned exams as 9 to a period as 27 slot times and to 3 rooms, with 3 classes. Each student in each class takes 9 exams. While, the second algorithm simulates the classic manual methods while observing the hard and soft constraints of the problem. The heuristic approach is used to further optimize the result to include hard constraints with soft. The proposed methodology for creating the Exam timetabling problem has been implemented in Matlab and closing the gap between classical methods and intelligent methods. The results obtained with very less computational effort through two algorithms.

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- 226 Performance of circular patch microstrip antenna for adaptive modulation and coding applications  
*Open Access*
- Alsawaf, H.A., Ahmad, B.M.
- 2022 Bulletin of Electrical Engineering and Informatics 11(3), pp. 1370-1380
- 1

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The thickness of the substrate is one factor influencing antenna performance. In this paper, the circular patch antenna was designed using rogers RT5880 with dielectric constant of 2.20, loss kept 0.0009 and FR-epoxy with dielectric constant of 4.4, loss kept 0.02. The thickness of the substrate was varied to see how it affected antenna performance, such as return loss. The thickness of the checked substrate is 1.58 mm, which is the standard thickness for rogers RT5880 as well as 2.08 mm, 2.58 mm and 2.85 mm. The simulation work is carried out by ANSYS HFSS software. In this paper, the thicknesses of different substrates are checked while other parameters stay constant and the circular patch radius of the antennas is optimized to achieve a resonant frequency of 3.5 GHz based on the thickness of the above-mentioned substrates used. Return loss, VSWR, gain and half power beam width were found, and the results showed that with the increase in the thickness of the substrate, the gain increases and the value of half power beam width (HPBW) and better results were obtained in the case of RTduroid 5880 and for thicknesses h=2.85 mm.

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<input type="checkbox"/> 227	An improved approach for managing energy efficiency in mobile networks <i>Open Access</i>	Abdullah, R.M., Abdulqader, A.H., Ali, D.M., Alwan, A.A., Abualkishik, A.Z.	2022 Indonesian Journal of Electrical Engineering and Computer Science 26(2), pp. 955-964	0
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It is highly expected that soon there will be environmental and economic negative implications from the amount of energy consumed by wireless network devices. Therefore, many researchers have paid attention toward addressing these challenges to investigate the impact of these wireless networks on both environment and the economy. This paper proposes an approach for alternating work among the fifth generation (5G) with long-term evolution (LTE) wireless networks. The idea of the proposed approach relies on turning off specific base stations (BSs) and antennas for the users based on the required quality of service (QoS). Some BSs like 5G networks aim to provide high-speed communications with significant savings in energy consumption during high traffic periods. On the other hand, there is a slow speed with the high consumption of energy in other BSs like LTE networks. Our proposed solution employs the idea of activating some of the BSs networks and changing the number of active antennas that achieves optimal results for the entire area. Doing so lead to a significant reduction in energy consumption when the traffic load is low. The experimental results illustrate that our proposed solution outperforms the most recent approaches by saving a significant amount in power consumption while maintaining a stable service awareness during switching situations.

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<input type="checkbox"/>	228	COVID-19 Improved Diagnoses Based on the Open-morphology Filter and Deep-learning	Younus, M.D., Zedan, M.J.M., Malallah, F.L., Saeed, M.G.	2022	Recent Patents on Engineering 16(3),e180621194172, pp. 122-130	2
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Background: Coronavirus (COVID-19) has appeared first time in Wuhan, China, as an acute respiratory syndrome and spread rapidly. It has been declared a pandemic by the WHO. Thus, there is an urgent need to develop an accurate computer-aided method to assist clinicians in identifying COVID-19-infected patients by computed tomography CT images. The contribution of this paper is that it proposes a pre-processing technique that increases the recognition rate compared to the techniques existing in the literature. Methods: The proposed pre-processing technique, which consists of both contrast enhancement and open-morphology filter, is highly effective in decreasing the diagnosis error rate. After carrying out pre-processing, CT images are fed to a 15-layer convolution neural network (CNN) as deep-learning for the training and testing operations. The dataset used in this research has been publically published, in which CT images were collected from hospitals in Sao Paulo, Brazil. This dataset is composed of 2482 CT scans images, which include 1252 CT scans of SARS-CoV-2 infected patients and 1230 CT scans of non-infected SARS-CoV-2 patients. Results: The proposed detection method achieves up to 97.8% accuracy, which outperforms the reported accuracy of the dataset by 97.3%. Conclusion: The performance in terms of accuracy has been improved up to 0.5% by the proposed methodology over the published dataset and its method.

<input type="checkbox"/>	229 Vitamin D and its Relation with Female Outfit Dressing Style <i>Open Access</i>	Sabbagha, M.G., Omer, Z.K., Al-Omari, A.F.	2022	International Journal of Drug Delivery Technology 12(2), pp. 688-691	0
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Background: Vitamins, minerals, and other important nutrients we get from food can keep our bodies healthy, and to get strong bones, we need calcium and vitamin D. Vit D3 titled the “sunshine vitamin,” is one of the important nutrients needed for a female’s health. Vit D had a constant function in adaptive and inherent immunity. Exposure to sunlight has a major role in providing adequate Vit D for most people in the world. Aim of the study: Our study aims to evaluate Vit D and calcium levels in healthy young females of child-bearing age and to inspect the effects of their outfit dressing. Methods: A total of 108 women were included, those wearing full cover outfit style clothing covering all body leaving the face area and hand exposed group I (74 women), and uncovered women with exposed head, arms, and legs group II (34 women). A quantitative test was used to determine 25-hydroxy Vit D in human serum using minoxidase and for total calcium measurement atomic absorption spectrophotometry. Results: All women in both groups had a blood test for calcium (Ca) and Vit D3 level levels, and a calculation of body mass index (BMI) was done. Using t-test for the comparison between (group I and group II). A significant difference ( $p < 0.005$ ) was found in serum Vit D3, which was lower in group I with a mean ( $12.09 \pm 7.59$ ), and for group II, it was ( $16.56 \pm 7.61$ ). Serum calcium was slightly elevated in group II than in group I, but there was no significant between the two groups. The mean serum calcium level was (9.41) in group I and (9.56) ( $p < 0.3$ ) in group II. Although body mass index was higher in group I mean ( $28.73 \pm 0.61$ ) than group II mean ( $27.25 \pm 4.88$ ), it was statistically not significant ( $p < 0.2$ ). Conclusion: The finding of this study revealed that many factors could affect Vit D levels, like clothing styles and lifestyle. Inadequate Vit D intake and covered dress style can lead to low Vit D levels. A recommendation that has been suggested when there is no Vit D intake is to expose the face area, arms, and hands for a short duration in the middle of the day many times a week to have normal Vit D levels.

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| <input type="checkbox"/> | 230 | Dimethyloxalylglycine (DMOG), a Hypoxia Mimetic Agent, Does Not Replicate a Rat Pheochromocytoma (PC12) Cell Biological Response to Reduced Oxygen Culture<br><i>Open Access</i> | Chen, R., Ahmed, M.A., Forsyth, N.R. | 2022 | Biomolecules<br>12(4),541 | 2 |
|--------------------------|-----|--|--------------------------------------|------|---------------------------|---|

Cells respond to reduced oxygen availability predominately by activation of the hypoxia-inducible factor (HIF) pathway. HIF activation upregulates hundreds of genes that help cells survive in the reduced oxygen environment. The aim of this study is to determine whether chemical-induced HIF accumulation mimics all aspects of the hypoxic response of cells. We compared the effects of dimethyloxallylglycine (DMOG) (a HIF stabiliser) on PC12 cells cultured in air oxygen (20.9% O<sub>2</sub>, AO) with those cultured in either intermittent 20.9% O<sub>2</sub> to 2% O<sub>2</sub> (IH) or constant 2% O<sub>2</sub> (CN). Cell viability, cell cycle, HIF accumulation, reactive oxygen species (ROS) formation, mitochondrial function and differentiation were used to characterise the PC12 cells and evaluate the impact of DMOG. IH and CN culture reduced the increase in cell numbers after 72 and 96 h and MTT activity after 48 h compared to AO culture. Further, DMOG supplementation in AO induced a dose-dependent reduction in the increase in PC12 cell numbers and MTT activity. IH-cultured PC12 cells displayed increased and sustained HIF-1 expression over 96 h. This was accompanied by increased ROS and mitochondrial burden. PC12 cells in CN displayed little changes in HIF-1 expression or ROS levels. DMOG (0.1 mM) supplementation resulted in an IH-like HIF-1 profile. The mitochondrial burden and action potential of DMOG-supplemented PC12 cells did not mirror those seen in other conditions. DMOG significantly increased S phase cell populations after 72 and 96 h. No significant effect on PC12 cell differentiation was noted with IH and CN culture without induction by nerve growth factor (NGF), while DMOG significantly increased PC12 cell differentiation with and without NGF. In conclusion, DMOG and reduced oxygen levels stabilise HIF and affect mitochondrial activity and cell behaviour. However, DMOG does not provide an accurate replication of the reduced oxygen environments.

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<input type="checkbox"/>	231	HIGH SPEED SIGMA DELTA A/D CONVERTER FOR DIGITAL COMMUNICATION SYSTEMS	ALSHAREFI, R.S., YONIS, A.Z., MOHAMMED, K.K.	2022	Journal of Engineering Science and Technology 17(2), pp. 1162-1172	0
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The high advancement in modern electronic equipment led to the meet for high-efficiency analog to digital (A/D) convertor used for various digital communication systems this convertor must have special characteristics like high speed, low quantization noise, good spectral shaping, and efficient power density. Sigma delta ( $\Sigma\Delta$ ) modulation is a coding process used to enhance the resolution of a sampled data result from low resolution sampled sequence measurements. Usually, main three processes are employed to increase the resolution, the first step is oversampling to produce the correlated samples, the second step is feedback to shape the noise spectrum, and finally filtering to remove all the out-of-band spectrum harmonics. In this paper, three types of sigma-delta modulation were designed, 2nd, 3rd, and 4th order modulator. It is found that increasing the order of the modulator led to improving the overall performance of the system also using high sampling frequency will increase the resolution and reduce out of band harmonics in the 1st and 2nd modulation order.

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<input type="checkbox"/>	232	Magnetic resonance coupling wireless power transfer for green technologies <i>Open Access</i>	Nafiaa, R.E., Yonis, A.Z.	2022	Indonesian Journal of Electrical Engineering and Computer Science 26(1), pp. 289-295	3
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Wireless power transfer (WPT) is a technology that is considered the focus of scientists' attention for its development and creation to be compatible with many devices that are used today and also consider one of the green technology apps which means any technology can reduce the effect of people on the environment which is today grow continuously. In this paper, a wireless power transfer for a mobile charger had been discussed to get a maximum power and efficiency power transfer. WPT is considered as a reliable technology, efficient, fast, not using wires, and can be used for short and long-range. There are three methods for WPT, electromagnetic induction, magnetic resonance coupling, and radio waves which are classified by the distance that sends the power. Magnetic resonance coupling is the method that has been focused on in this paper because of compatibility with short or medium distances as battery chargers which depend on the magnetic field to transfer power without wires that can protect devices from damages and heating. As result the effect of distance on efficiency has been discussed with reached to nearer distance can improve efficiency however by using magnetic resonance technique, acceptable efficiency can be obtained with appropriate distance.

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<input type="checkbox"/>	233	Investigation of pattern division multiple access technique in wireless communication networks <i>Open Access</i>	Yonis, A.Z., Mohammed, K.K.	2022	Indonesian Journal of Electrical Engineering and Computer Science 26(1), pp. 296-303	0
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Recently, pattern division multiple access (PDMA) is a non-orthogonal multiple access system that is now being developed in next-generation telecoms to address the requirement for mass connectivity. The core premise of non-orthogonal multiple access is to simultaneously serve multiple users with varying power levels across the same spectrum resources such as time, frequency, code, as well as space with minimal inter-user interference. A simulation analysis of significant technology enhancements focusing on PDMA aims to describe the benefits of the two plans now being examined by the third-generation partnership project for 5G technologies, namely filtered orthogonal frequency division multiplexing (F-OFDM) and windowed orthogonal frequency division multiplexing (W-OFDM), and to compare them to alternative modulation processes such as 16, 32, and 128 modulations. The research results explained the PDMA is less bit error rate used in multiple access technologies compare with W-OFDM and F-OFDM.

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<input type="checkbox"/>	234	A Taxonomic Study comparing the two types of Medicinal Leeches available in Iraq	Khalid, I., Nayyef, N.S., Merkhan, M.M.	2022	Research Journal of Pharmacy and Technology 15(3), pp. 1119-1122	3
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Medical leeches are ectoparasites invertebrates which are widely used in medical and surgical treatments because it was found since the ancient time that many diseases can be cured by medicinal leeches, then it was discovered that leech saliva contains anti-inflammatory, analgesic, antibacterial, anticoagulant, and even anticancer enzymes, also they found that medicinal leeches have a great role in treating diabetic ulcers. Two samples of leeches were collected from two regions in Iraq from September to the end of December 2020. These samples were examined alive by dissecting microscope and then they were examined after fixing them in formaldehyde 5%. The samples of leeches that were used to analyze their genetic DNA were fixed and preserved in absolute ethanol. The classification process was done through a molecular diagnosis of samples of medical leeches by using polymerase chain reaction PCR and technique tracking nitrogenous bases in the nucleic acid chain, and the molecular diagnosis depending on Cytochrome oxidase subunit 1 (CO1), and then the result of PCR of medical leech samples was sent with the primers of the resulting bands and the gene sequences were read depending on the Genetic Analyser Device 3130 supplied by Japanese Hitachi company. Then the gene sequences were matched with gene sequences documented in the National Center Biotechnology Information NCBI. The results were analyzed depending on the BLAST program through which two types of medical leeches were detected *Hirudo medicinalis* and *Hirudo verbena*.

- | Document title  | Authors   | Year | Source  | Cited by |
|---|---|------|---|----------|
| <input type="checkbox"/> 235 Effect of Zinc as an Add-On to Metformin Therapy on Glycemic control, Serum Insulin, and C-peptide Levels and Insulin Resistance in Type 2 Diabetes Mellitus Patient | Younis, H.Y.,<br>Thanoon, I.A.,<br>Fadhil, N.N.,<br>Merkhan, M.M. | 2022 | Research Journal of Pharmacy and Technology<br>15(3), pp. 1184-1188 | 17       |

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Type 2 diabetes mellitus (T2DM) is an insidious disorder that may progress asymptotically, leading to secondary complications. Diabetics were found to have a significantly lower zinc level. This study aims to assess the effects of zinc supplementation for eight weeks on glycemic control, serum insulin level, serum C-peptide level, and insulin resistance. Zinc plus metformin using group had a significant decrease in fasting blood glucose level and glycated hemoglobin, as well as a significant increase in serum insulin and C-peptide levels, but no effect on insulin resistance compared to zinc-free metformin group. Comparing the two groups at the end of the study, the combined effect of zinc plus metformin was highly important versus metformin only except for C-peptide and insulin resistance. Zinc levels were significantly elevated and returned to normal in the interventional group, while in the control group, levels were rather decreased.

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<input type="checkbox"/>	236	Effect of Vitamin D Therapy on Adiponectin level among type 2 Diabetes mellitus patients	Alkhaerow, R.A., Mohammad, S.H., Fadhil, N.N.	2022	Research Journal of Pharmacy and Technology 15(3), pp. 1263-1266	0
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Hide abstract  [Locate full text](#) [Related documents](#)

The aim of this study was to investigate the effect of weekly dose of 50.000IU vitamin D for 8 weeks on serum adiponectin level in diabetic patients who have vitamin D deficiency. The study has been included 80 female and male patients with type 2 diabetes mellitus who have vitamin D deficiency were ages range from 25 to 70 years old. The patients have been prepared to have fasting serum adiponectin and vitamin D level tests. After 8 weeks of treatment with vitamin D as an add-on to the conventional anti-diabetic drugs taken up by the patients, there was a highly significant improvement in vitamin D and serum adiponectin level. The mean  $\pm$ Std. of vitamin D at the base line was  $14.76 \pm 6.02$  ng/ml and after 8 weeks' treatment was  $42.865 \pm 12.012$  ng/ml. For adiponectin level, the mean  $\pm$ Std. at the base line and after 8 weeks treatment with vitamin D was  $7.316 \pm 1.563$  ng/ml,  $9.705 \pm 3.269$  ng/ml respectively. As a conclusion, vitamin D level corrected and became in sufficient values after treatment with 50.000IU vitamin D for 8 weeks. Also there is a highly significant improvement in serum adiponectin level after 8 weeks of vitamin D treatment.

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<input type="checkbox"/>	237	DDoS Attack Detection in Software Defined Networks by Various Metrics	Saadallah, N.R., Al-Talib, S.A.A., Malallah, F.L.	2022	Recent Patents on Engineering 16(2),e140721194775	1
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Background: Software-Defined Networks (SDNs) are a new architectural approach to smart centralized control networks that were introduced alongside Open Flow in 2011. SDNs are programmed using software applications that help operators manage the network in a fully consistent and comprehensive way. Centralization in these networks is considered a weakness, especially if it is accessed by a Distributed Denial of Service (DDoS) attack-which is the process of uploading huge floods of various sorts of traffic to a website, from multiple sources, in order to make it and its services inaccessible to users. Methods: In our current research, we will build an SDN through a Mininet virtualization simulator, and by using Python. A DDoS attack will be detected depending on two facts: firstly, Traffic State-which normally sees traffic packets sent at around 30 packets per second (DDoS packets are about 250 packets per second and will completely disrupt the network if the attack persists). Secondly, the number of IP Hits. The method used in the research appears very effective in detecting DDoS, according to the results we have achieved. Results: The proposed performance of the system: The Precision (PREC), Recall (REC), and F-Measure (F1) metrics have been used for assessment. Conclusion: The novelty of the current research lies in the detection of penetration in SDN networks, by calculating the number of hits by the hacker's device and the number of times they enter the main device in the network, in addition to the large amount of data sent by the hacker's device to the network. The experimental results are promising as compared with the datasets like CIC-DoS, CI-CIDS2017, CSE-CIC-IDS2018, and customized dataset. The results ranged between 90% and 96%.

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| <input type="checkbox"/> | 238 Flexible Sub-bands F-OFDM Configured for Spectrum Efficiency Enhancement in 5G System<br><i>Open Access</i> | Ali, D.M., Yahya, Z.Z. | 2022 | Journal of Communications 17(3), pp. 203-209 | 0 |
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The new product of wireless communication systems, the Fifth generation (5G), promises higher data rates and Spectrum Efficiency (SE) enhancements to support the communication of heterogeneous services. The Filtered-OFDM (F-OFDM) technique was proposed as the strongest candidate waveform for the physical layer in 5G to fulfill these requirements. In F-OFDM, the whole band is split into narrow sub-bands, each filtered by a digital Finite Impulse Response (FIR) filter with different specifications to increase the spectrum utilization and allow for asynchronous transmission. This paper proposes a novel F-OFDM design waveform for the first time with four sub-bands in equal and unequal sub-band sizes of seven kinds of window sinc filters and a variety of numerology designs to observe SE enhancement using Matlab-Simulink Software. Simulation results show that F-OFDM can reduce Out-Of-Band Emission (OOBE) and achieve SE of about (5%6%) higher than conventional OFDM for equal and unequal sized sub-bands, respectively, by optimizing the guard band between the designed sub-bands, which achieves 5G guard band requirements.

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| <input type="checkbox"/> | 239 | Screening for Celiac Disease in Patients with Irritable Bowel Syndrome Fulfilling Rome III Criteria<br><i>Open Access</i> | Al-Abachi, K.T. | 2022 | Journal of Coloproctology<br>42(1), pp. 20-24 | 1 |
|--------------------------|-----|---|-----------------|------|---|---|

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Background: Irritable bowel syndrome (IBS) is a common functional gastrointestinal disorder. Celiac disease (CD), a treatable autoimmune enteropathy, with varied presentations, may simulate clinically symptoms of IBS. The aim of the present study is to screen for CD in patients with IBS diagnosed based on the Rome III criteria. Patients and Methods: A cross-sectional study was conducted at a secondary care gastrointestinal unit in Al-Salam General Hospital in Mosul city, Iraq, from November 2015 to October 2016. All patients fulfilling the Rome III criteria for IBS were screened for CD using antitissue transglutaminase IgA antibodies (anti-tTG). Patients who tested positive were subjected to endoscopic duodenal biopsy to confirm the diagnosis of CD. Results: A total of 100 patients were included in the present study (58 female and 42 male), the mean age of the participants was 40.8 years old (standard deviation [SD]  $\pm$  11.57). Ten patients (10/100, 10%) tested positive for anti-tTG antibodies. Five of the seropositive patients (5/10, 50%) showed positive biopsy results according to the Marsh classification, 3 of whom having diarrhea, and 2 with constipation. Conclusion: Positive serology and biopsy results suggestive of CD are common among patients with IBS. Screening patients with IBS for CD is justified.

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<input type="checkbox"/>	240	Short-term treatment with Atorvastatin selectively decreases Lymphocyte count	Almukhtar, H.M., Faisal, I.M., Merkhan, M.M.	2022	Research Journal of Pharmacy and Technology 15(2), pp. 689-694	10
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Statins are a chemically related group used as lipid-lowering agents, studies confirmed that statins have additional pleiotropic, cholesterol independent, effects mediated by inhibition of isoprenoid synthesis with subsequent inhibition of the downstream signaling molecules like Rho, Rac, and Ras. However, different statin members might have a distinctive effect on the immune system; thereby having different peripheral and cardiovascular actions, such extra-hepatic effects impose the preferences of one statin over another. The present study aimed to identify the role of the short-term utilization of atorvastatin on leukocyte concentration as a representative in vivo marker for immunomodulation. Two widely used statin agents were included in the study-the lipophilic (atorvastatin) versus the hydrophilic (rosuvastatin) for comparison. Blood samples were withdrawn from the two statin groups, before and after therapy, and an automated differential white blood cell count was performed to determine the difference between the studied samples. The results showed that short-term use of atorvastatin, but not rosuvastatin, was associated with a selective reduction of lymphocyte count ( $p < 0.0001$ ). The study concluded that lymphocyte levels were reduced significantly after short-term use of atorvastatin; an effect which might need to be considered in certain immunological disease associated with cardiac ones.

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<input type="checkbox"/>	241	Stabilization of Three Links Inverted Pendulum with Cart Based on Genetic LQR Approach <i>Open Access</i>	Abdullah, A.I., Alnema, Y.H.S., Thanoon, M.A.	2022	Journal Europeen des Systemes Automatisees 55(1), pp. 125-130	5
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This academic paper demonstrates the implementation of a Linear Quadratic Regulator (LQR) controller design for optimal controlling a three connected links in an inverted pendulum form that attached to a moving cart to realize the stability of making a pendulum in a straight vertical line via translation of the cart left and right. To maintain a triple link inverted pendulum (TLIP) vertical, genetic algorithm has been employed to adjust and tune the parameters of LQR, which are the weighting matrices Q and R instead of the approach of try and error. In this article, a hybrid control algorithm (GA-LQR) proposed to select the optimal values of weighting matrices to overcome LQR design difficulties, which gives the best transient response requirements such as percentage overshoot and steady state error. The triple link inverted pendulum is model mathematically modelled in MATLAB platform to simulate the actual system where the results from the simulation gives acceptable and adequate performance of LQR controller in making the system stable.

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<input type="checkbox"/>	242	Shared Control of a Robot Arm Using BCI and Computer Vision <i>Open Access</i>	Qasim, M., Ismael, O.Y.	2022	Journal Europeen des Systemes Automatisees 55(1), pp. 139-146	2
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Brain-Computer Interface (BCI) is a device that can transform human thoughts into control commands. However, BCI aggravates the common problems of robot teleoperation due to its low-dimensional and noisy control commands, particularly when utilized to control high-DOF robots. Thus, a shared control strategy can enhance the BCI performance and reduce the workload for humans. This paper presents a shared control scheme that assists disabled people to control a robotic arm through a non-invasive Brain-Computer Interface (BCI) for reach and grasp activities. A novel algorithm is presented which generates a trajectory (position and orientation) for the end-effector to reach and grasp an object based on a specially designed color-coded tag placed on the object. A single camera is used for tag detection. The simulation is performed using the CoppeliaSim robot simulator in conjunction with MATLAB to implement the tag detection algorithm and Python script to receive the commands from the BCI. The human-in-the-loop simulation results prove the effectiveness of the proposed algorithm to reach and grasp objects.

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<input type="checkbox"/>	243	RLC - BASED IMAGE COMPRESSION USING WAVELET DECOMPOSITION WITH ZERO - SETTING OF UNNECESSARY SUB-BANDS	Dawood, A.A.M., Abdulaziz, A.S., Mohammed, A.J.	2022	Journal of Engineering Science and Technology 17(1), pp. 391-403	1
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Image compression is a vital approach that is used in different applications. Transformation lossy compression is necessary as communication speed and storage are limited. Many of image compression techniques rely on thresholding the transformation coefficients to reduce the compressed image size. In this paper, the coefficients of specific bands of the wavelet transform are abstracted. In the proposed approach, 2-D matrices are abstracted into a single value. Throughout the conducted experiments, it is noticed that the discrete wavelet transform (DWT) bands have zero-mean Gaussian distributed histogram, except the approximation sub-band. Hence, estimating the power of those 'unnecessary' bands will be enough to re-construct the image with less errors. Ignoring the coefficients of the unnecessary bands by abstracting them to a single value for each, is like resetting them. The achieved data reduction is high as compared to the image quality at the construction. It is proved that the proposed Abstract and Reset Unnecessary DWT Bands (ARUBA) has better compression ratio compared to the standard JPEG2000.

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<input type="checkbox"/>	244	Design of multiple-input and multiple-output antenna for modern wireless applications <i>Open Access</i>	Muttair, K.S., Shareef, O.A., Sabaawi, A.M.A., Mosleh, M.F.	2022	Telkomnika (Telecommunication Computing Electronics and Control) 20(1), pp. 34-42	11
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In this paper, multiple-input and multiple-output (MIMO) antennas are designed and simulated. The designed antennas are compact double-sided printed microstrip patch antennas and fed by a microstrip line. These antennas are designed for 3.5 to 10 GHz frequencies used for medical, industrial, sciences, and various fields of 5G communications and networking applications. Furthermore, a MIMO system is designed using the polarization variability of the individual antennas, which yields better results in terms of mutual coupling (S12 and S21), reflection coefficient (S11 and S22), and voltage standing wave ratio (VSWR), which is less than 2 indicate improved matching conditions. The designed antennas showed an acceptable gain (around 2 dB) and an envelope correlation coefficient (ECC) is <0.002. In addition, the proposed MIMO antennas exhibited isolation is -25 dB at 6 GHz, which is preferable in 5G mobile antennas.

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| <input type="checkbox"/> | 245 | Association of Helicobacter pylori Infection with Type 2 Diabetic Patients in Dohuk Governorate, Iraq<br><i>Open Access</i> | Al-Khafaf, A.H., Al-Rawi, N.F., Ibrahem, H.A., Hussein, N.R. | 2022 | Iraqi Journal of Science<br>63(1), pp. 62-69 | 3 |
|--------------------------|-----|---|--|------|--|---|

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Helicobacter pylori (H. pylori) is one of the most common human pathogens in the world. Several studies that have investigated the correlation between H. pylori infection and type 2 diabetes mellitus (DM) found that H. pylori infection is more frequent in the patients, while the results of other studies were unclear. This paper aims to investigate the interrelation between the infection with H. pylori and type 2 DM in Dohuk governorate, Iraq. Eighty four diabetes patients (41 males, 43 females) and 92 healthy controls were involved in this study. H. pylori status was assessed in serum samples by using ELISA test. Out of the 84 patients, 65 patients (77.4%) were H. pylori positive (+ve) and 19 (22.6%) were H. pylori negative (-ve), with the difference being statistically significant. This paper found that diabetes is significantly associated with the infection of H. pylori in the studied sample of Iraqi patients.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	246 Effect of Esomeprazole on serum creatinine and urea in patients with Peptic Ulcer	Merkhan, M.M., Abdullah, E., Althanoon, Z.	2022	Research Journal of Pharmacy and Technology 15(1), pp. 160-164	12

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Peptic ulcers are best treated by proton pump inhibitors (PPIs), however, other simple gastrointestinal (GIT) disorders should be better treated by other acid neutralizing or anti-secretory agents. Unfortunately, most GIT diseases were reported to be treated by PPIs even though non-indicated cases. The reasons might include ease availability with/without prescription, reduce patient awareness, and overprescription of PPIs by the health care professionals. This study aims to highlight the effect of these drugs on the renal function test. Patients were recruited and enrolled in the study from outpatients private clinics and plasma samples were withdrawn from control healthy, esomeprazole and omeprazole users individuals. Plasma samples were frozen for further analysis, creatinine and urea test were conducted on overall samples and the results were displayed confirming significant dysfunctioning of the renal system from PPIs use. The study concluded that creatinine and urea are higher in a patient on esomeprazole than omeprazole and the control group. The study recommends general awareness of the society about regular use of these medications unless otherwise carefully required.

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<input type="checkbox"/>	247 Deep Learning Methods for Seizure Prediction by Evaluating EEG Signals	Hussein, H.M., Abdalla, K.K., Mahmood, A.S.	2022	AEST 2022 - 2022 2nd International Conference on Advances in Engineering Science and Technology pp. 40-46	0
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Epilepsy is one of the most common central nervous system diseases. It is characterized by seizures between different periods of time and may endanger the patient's life if they are in a state of work or in a critical place or situation. Anticipating the coming of seizures is important in protecting the patient's life, as they will take some measures or take medications to reduce the risks or prevent the seizure from occurring. In this paper, two deep learning methods are suggested and evaluated; the first model is based on a Convolutional Neural Network (CNN), and the second model is based on Gated Recurrent Unit-Long Short-Term Memory (GRU-LSTM). The models are used in order to distinguish between the preictal state and interictal state, and then predict the onset of the seizure. The methods were based on patient comfort while using the device, using 5 electrodes of Electroencephalogram (EEG) signals and reducing the alert period to only 10 minutes before the onset of the seizure. Results of 90% in terms of accuracy and 90% in terms of sensitivity were obtained using the first model. In addition, 71% accuracy and 73% sensitivity were obtained using the second model. Finally, with respect to the second method by using the average voting technique, a portion of the EEG signal with a length of 2 minutes was used, and the obtained results were 74% accuracy, and 84% sensitivity.

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<input type="checkbox"/>	248	Design, Realization, and Simulation of CMOS Active Inductors for RF Applications	Oraha, J.A., Younis, A.T.	2022	AEST 2022 - 2022 2nd International Conference on Advances in Engineering Science and Technology pp. 489-494	0
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Many Radio frequency (RF) circuits such as low noise amplifier (LNA), voltage controlled oscillators (VCO), and RF filters need inductors for realization. Passive and spiral implementations of the inductors have many limitations, especially when these RF circuits are designed and realized as an integrated circuit. Standard structures realize active inductors that usually provide a limited inductor value and quality factor. This paper presents an alternative active Complementary Metal-Oxide Semiconductor (CMOS) realization, based on the use of the gyrator-c configuration that is suitable for the Integrated Circuit (IC) fabrication. Four CMOS active realizations are presented that include the basic realization, topology with feedback resistor, active MOS transistor feedback, and the voltage divider type structure. A comparative study between these realizations is performed to improve the active filter performance. The most important parameters that have to be investigated are the quality factor, range of inductors value at specified operating frequency, and the self-resonance frequency. It is shown that the use of passive feedback improves the active inductor performance, however, large passive resistance is required which is not suitable for the IC fabrication. An alternative MOS transistor and the voltage divider are used to replace the passive feedback resistor, so as to improve the performance without the need of a large chip area for fabrication. It is also shown that different transistor dimensions  $w_1, w_2, \dots$  and different current source values  $I_1, I_2$  result in different performance parameters. Therefore, minimized transistors dimensions are required for the minimum chip area, and minimized current values are required to minimize the power consumption. It is shown that the voltage divider AI realization resulted in a significant improvement in inductance value ( $L=20.16$  nH) and a higher quality factor ( $Q=3.069$ ) as compared to other topologies.

<input type="checkbox"/>	249	Hidden Object Recognition using Convolutional Neural Network	Fathi, N.H., Abbosh, Y.M., Ali, D.M.	2022	Proceedings - ISMODE 2022: 2nd International Seminar on Machine Learning, Optimization, and Data Science pp. 596-600	0
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In this paper, the detection, and localization of a hidden object in the human body using deep neural networks have been studied. To build a model, an electromagnetic simulator is employed. The model consists of four layers (skin-fat-muscle-bone) each of these layers has different conductivity and relative permittivity. Spherical shrapnel of different sizes 5mm, 10mm, and 15mm is supposed to be at various places in the model. The signal is directed at the model using a monopole ultra-wideband antenna, which is also used to pick up signals that are reflected back. In order to determine whether shrapnel is present or not, its size, and where it is located, the collected signals are analyzed using a deep neural network. The acquired results utilizing the suggested method are encouraging, with 90% success in shrapnel identification, 88% success in shrapnel sizing, and 78% success in shrapnel depth. More antennae could be used to improve performance.

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| <input type="checkbox"/> | 250 | ARRAY RADIATION PATTERN RECOVERY UNDER RANDOM ERRORS USING CLUSTERED LINEAR ARRAY<br><i>Open Access</i> | Abdulqader, A.J.,<br>Thafer, R.H.,<br>Mohammed, J.R. | 2022 | Journal of Engineering and Sustainable Development<br>26(1), pp. 43-54 | 1 |
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In practice, random errors in the excitations (amplitude and phase) of array elements cause undesired variations in the array patterns. In this paper, the clustered array elements with tapered amplitude excitations technique are introduced to reduce the impact of random weight errors and recover the desired patterns. The most beneficial feature of the suggested method is that it can be used in the design stage to count for any amplitude errors instantly. The cost function of the optimizer used is restricted to avoid any unwanted rises in sidelobe levels caused by unexpected perturbation errors. Furthermore, errors on element amplitude excitations are assumed to occur either randomly or sectionally (i.e., an error affecting only a subset of the array elements) through the entire array aperture. The validity of the proposed approach is entirely supported by simulation studies.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	251 5G F-OFDM Waveform Based Software-Defined Radio Technology <i>Open Access</i>	Ali, D.M., Yahya, Z.Z.	2022	Proceedings of Engineering and Technology Innovation 20, pp. 68-80	1

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Filtered-orthogonal frequency division multiplexing (F-OFDM) is a quasi-orthogonal waveform candidate for the applications of the fifth generation (5G) communication system. In this study, an F-OFDM waveform with unequal sub-band sizes is proposed to improve the spectrum efficiency (SE) of the 5G system. The proposed waveform is modeled with the Blackman window-sinc filter and is developed based on the software-defined radio (SDR) technology for practical implementation. The result shows that the F-OFDM performance of the simulation and hardware implementation is approximately the same. The SE using the proposed F-OFDM waveform is 6% and 5.8% higher than the SE using the conventional OFDM waveform under the simulation in the LabVIEW NXG simulator and under the practical use in the universal software radio peripheral (USRP) platform, respectively.

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<input type="checkbox"/>	252 Investigation of High-Efficiency for Smartphone Applications	Nafaa, R.E., Yonis, A.Z.	2022	Proceedings - 2022 International Conference on Artificial Intelligence of Things, ICAIoT 2022	1
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Wireless Power Transfer (WPT) technology has recently become popular, due to its many benefits, including its simplicity, safety, dependability, absence of cables, etc. Many researchers are working to advance this technology so that it can be used in future smartphones. In this research paper, a wireless smartphones charger has been designed and simulated using MATLAB program to charge a smartphones device with acceptable frequency and efficiency, also with acceptable power approximately 10 watt above or below at different frequencies, in this paper a 70-100KHz is used. WPT classified into two categories first is the far field type which is used for the long distance and the second one is the near field type which is used with small and medium distance such as the smartphone charging that had been discussed. The results in this paper is discuss the effect of different frequencies on the efficiency of the charging system using magnetic resonance coupling technique.

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<input type="checkbox"/>	253	A Circular Dipole Nanoantenna with Improved Performance	Rasheed, A.A., Sayidmarie, K.H.	2022	ICOASE 2022 - 4th International Conference on Advanced Science and Engineering pp. 19-24	0
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Nanoantennas have attracted much attention because of their unique ability to collect light into subwavelength dimensions while enhancing a high electric field via localized surface plasmon resonance. Engineering the shape and size of the nanoantenna mostly focuses on improving the confined field or altering the resonance wavelength. This study focuses on improving the absorption and scattering properties of a circular-dipole nanoantenna by inserting circular holes in the two arms of the dipole. The influence of the dipole parameters on its properties such as resonance wavelength, reflection, and absorption, as well as the electric field in the gap was investigated. The proposed ring geometry can significantly increase the absorption while also inhibiting scattering, thus achieving an optimal operating state. The scattered power of a solid circular dipole nanoantenna can be up to 85%, while the remaining 15% of the incident power is absorbed. It is shown that the absorbed coupled power in the hollow circular dipole can be increased to 55%. This property results in optimal plasmonic localization of the field in the gap of the dipole nanoantenna. This finding can be deployed in photovoltaics, thermoplastics, fluorescence microscopy, and biosensing applications.

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<input type="checkbox"/>	254	Compact Reconfigurable Band-Reject/All-Pass Microstrip Filter Using U-Shaped Slot	Shareef, A.M., Sayidmarie, K.H.	2022	ICOASE 2022 - 4th International Conference on Advanced Science and Engineering pp. 49-54	0
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This paper proposes a compact reconfigurable filter that uses a resonant element in the form of a folded slot. The U-shaped slot is embedded into the 50 Ohm microstrip line. Due to folding, the slot length is reduced to 1/4 the effective wavelength leading to considerable miniaturization compared with the filters that use resonant elements like rings or coupled open-circuited or short-circuited stubs. The presented design example at the WLAN frequency of 2.45 GHz can be configured between a band-reject and all-pass states, by placing a PIN diode at the centre of the slot. The proposed filter was investigated using the CST Studio Suite Software-3D Electromagnetic Simulation. The obtained results showed low insertion loss in the band-pass state and high rejection in the stopband state. The tests of the fabricated prototype showed comparable results to the simulation one thus verifying the design.

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<input type="checkbox"/>	255	Elements Selection for Auxiliary Array in the Adaptive Sidelobe Canceller Radar System <i>Open Access</i>	Mohammed, J.R.	2022	Periodica polytechnica Electrical engineering and computer science 66(4), pp. 406-414	0
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In a recent paper, the conventional sidelobe canceller radar system was developed by replacing the separate auxiliary antennas by few elements at the center of the main antenna array. The modified system with reused elements was associated with some attenuation in the desired signal due to the emerging correlation between the signals that exists in the main and the reused array elements. This problem was solved by imposing some constraints on the array pattern of the reused elements. In this paper, few of the side elements of the main array are employed as the auxiliary antennas. This new proposed configuration is called sided-elements. Unlike the previous centered-elements configuration, the proposed sided-elements configuration offers more desired features since the pattern of the side elements has sidelobes of similar widths of those of the main array. Moreover, a better diversity is obtained due to the wider separation between the two groups of elements at both sides of the main array. Simulation results fully confirm the effectiveness of the new proposed sided-elements configuration for suppressing the undesired interfering signals and retaining the desired signal undistorted.

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<input type="checkbox"/>	256	QUALITY OF LIFE IN PATIENTS WITH CORONARY ARTERY DISEASE: A PROSPECTIVE STUDY <i>Open Access</i>	Mahmood, H.J., Murad, S.H., Abdullah, M.K., Ibrahim, R.H.	2022	Malaysian Journal of Public Health Medicine 22(3), pp. 259-267	1
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The objective of the current study is to compare patients' Quality of life with myocardial infarction (MI) and angina pectoris (AP). In a cross-sectional study, 351 people who had been diagnosed with coronary artery disease in 2021 were selected. The QoL, SF-36, and information sheet were employed in this research. Univariate and bivariate binary Logistic Regression was used to analyse the data. Preliminary results show that concerning age, the average was in the AP group and the MI group ( $40.5 \pm 0.2$ ), ( $52.6 \pm 0.3$ ), respectively. Women constituted the highest percentage (57%) in the two groups. Most of the study participants have low education (57%) and are married (92%). In the invariable logistic regression analysis, ORs were higher among patients belonging to the age group  $\geq 65$  in the AP (OR, 4.11; 95% CI, (2.59–4.14);  $P= 0.001$ ) and the MI group (OR, 7.18; 95% CI, (5.74–8.97);  $P< 0.001$ ). Patients' Quality of life suffers significantly after a cardiac attack, particularly in the early stages of recovery. While significant life improvements have been made over time, physicians working with cardiac patients face difficulty due to residual discomfort after a year's follow-up.

<input type="checkbox"/>	257	Network Communication Intrusion Detection and Classification Security Techniques	Yonis, A.Z.	2022	2022 IEEE Integrated STEM Education Conference, ISEC 2022 pp. 455-459	0
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Towards more security for next-generation wireless networks and information technologies is a patent of application for Network Communication Intrusion Detection and Classification Security Techniques in the world, Recently the demands of utilizing security have been increased for communication networks, Advanced research in next-generation networks (5G and beyond) and information technology applications can be used for many applications (military, and civil). This research paper discusses the concept of network intrusion detection and classification based on-hybrid intelligence techniques. The best solutions which are result from the training process will be used to test the efficiency of misuse detection with KDD99 testing data.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	258 Noise Removal of ECG signal using Multi-Techniques	Marzog, H.A., Abd, H.J., Yonis, A.Z.	2022	2022 IEEE Integrated STEM Education Conference, ISEC 2022 pp. 397-403	1

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Electrocardiogram (ECG) signals are heavily influenced by a wide range of noise sources. The signal can be denoised by removing unwanted components from the representation. We present the new method, demonstrate how it works with signals, and discuss its properties. Power line interference (PLW), baseline noise, electrode motion artifact noise, and Electromyography (EMG) noise are the most commonly influenced noise on ECG signals. Denoising ECG signals is a critical step in obtaining pure signal features that can be extracted for accurate diagnosis. This research focuses on the various sources of common noise in ECG signals, as well as signal processing techniques for removing the noise. The discrete wavelet transform can be used to remove baseline noise from an ECG signal (DWT). Powerline noise can be removed it by Notch filter. Adaptive filtering is thought to be a good way to get rid of EMG noise, and we can solve the problem with a new algorithm. Least mean square (LMS) adaptive filters and recursive least square (RLS) filters are used to remove Electrode Motion artifact noise. The MIT-BIH arrhythmia dataset are utilizing for ECG analysis with Matlab2019b program.

<input type="checkbox"/>	259 DEVELOPMENT OF AN EFFICIENT VOLTAGE REGULATION MECHANISM FOR SWITCHED CAPACITOR CONVERTER WITH EXPONENTIAL GAIN <i>Open Access</i>	Abdul Kadir, M.N., Ameen, Y.M.Y., Al-Badrani, H.	2022	Eastern-European Journal of Enterprise Technologies 6(5-120), pp. 18-28	0
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The compact switched-capacitor converter with exponential gain and modular design has been adopted in this paper. Two approaches have been applied to improve the efficiency by providing multiple no-load voltages. The first modifies the switching strategy to bypass the gain of one or more stages. The second introduces modified design that provide additional no-load voltages through alternative current paths. The voltage regulation is implemented by two control loops: The outer loop is designed to produce the minimum feasible no-load voltage and the inner loop adjusts the duty ratio of the switching signals to regulate the voltage to meet the desired reference. Switched capacitor converters have been used as voltage multipliers with constant voltage gain. The efficiency of a switched capacitor converter depends on the ratio between regulated to unregulated output voltage. Therefore, output voltage adjustment of these converters causes a significant efficiency reduction. By providing multiple no-load voltages within the output voltage range the efficiency of the switched capacitor converter can be improved. The proposed design has been applied to a three-stage converter to provide six no-load voltages. Simulation results demonstrate that the average efficiency over the entire output voltage range is more than 90 % of its maximum efficiency of the unregulated switched capacitor converter which reflects the effectiveness of the proposed scheme. This paper offers an efficient method to regulate the voltage of a modular switched capacitor converter with exponential gain. The advantages of the proposed design are small number of added components, does not require additional sources and suitable for higher power range

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<input type="checkbox"/>	260	Performance Analysis of High-Efficiency WPT for Communication Technologies	Nafiaa, R.E., Yonis, A.Z.	2022	Proceedings - 2022 14th IEEE International Conference on Computational Intelligence and Communication Networks, CICN 2022 pp. 78-82	2
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Wireless Power Transfer (WPT) is a technology which is become an important topic nowadays due to many advantages that have, from the ease of use, safe, reliability, no need wires, and so on, and many scientists are trying to develop this technology to be used for more new smartphone devices, also WPT is considered one of green technology. In this research paper, a wireless power transfer system for the mobile battery charger had been designed and discussed using Mat lab program to get a 10 Watt to charge a mobile device with acceptable distance and efficiency. There are three methods for WPT includes electromagnetic induction (EI), magnetic resonance coupling (MRC), and radio waves (RW) which are categorized depending on the distance that sends the power. Magnetic resonance coupling is the method that has been designed is used for short and medium distances. In the result, the effect of distance system performance has been discussed.

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- 261 Trigonometrically-Fitted Fifth Order Four-Step Predictor-Corrector Method for Solving Linear Ordinary Differential Equations with Oscillatory Solutions *Open Access* Salih, M.M., Ismail, F. 2022 Malaysian Journal of Mathematical Sciences 16(4), pp. 739-748 2

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In this paper, we proposed a trigonometrically-fitted fifth order four-step predictor-corrector method based on the four-step Adams-Bashforth method as predictor and five-step Adams-Moulton method as corrector to solve linear ordinary differential equations with oscillatory solutions. This method is constructed which exactly integrate initial value problems whose solutions can be expressed as linear combinations of the set functions  $f \sin(x); \cos(ux)g$  with  $u \in \mathbb{R}$ , where  $v$  represents an approximation of the frequency of the problem. The frequency will be used in the method to raise the accuracy of the solution. Stability of the proposed method is examined and the corresponding region of stability is depicted. The new fifth algebraic order trigonometrically-fitted predictor-corrector method is applied to solve the initial value problems whose solutions involved trigonometric functions. Numerical results presented proved that the prospective method is more efficient than the widely used methods for the numerical solution of linear ordinary differential equations with oscillating solutions.

<input type="checkbox"/>	262	Indoor Safety Monitoring and Auto Temperature Detector for COVID-19	Al-Sanjary, O.I., Anati Binti Idzhar, B., Kashmola, M.Y.	2022	2022 IEEE 10th Conference on Systems, Process and Control, ICSPC 2022 - Proceedings pp. 34-38	0
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During the pandemic and endemic phase of COVID-19, prevention and precaution is one of the most important steps in order avoid the spread of the virus. This paper discusses about implementing a system to increase awareness of COVID-19. The system is a combination of body-temperature detector and building density detection technology. The purpose of this system is to count the total number of people population in a building and to measure their body temperature. The system is developed using Arduino UNO along with a number of sensors connected to it.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	263 Planar Absorbing FSS Unit Cells for Radar Cross-Section Reduction	Jasim, M.B., Sayidmarie, K.H.	2022	2022 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies, 3ICT 2022 pp. 476-480	1

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This paper investigates proposed unit cell designs for absorbing FSS intended for radar cross-section reduction. For such applications, the design should fulfill two requirements. The first is there should be a conducting ground plane that represents the surface of the object whose RCS is wanted to be reduced. Moreover, the thickness of the absorbing FSS should be kept minimal. Three designs of the double square rings were proposed to obtain a low reflection coefficient and wideband and investigated using the CST Microwave Studio Suite. The FSS cell of a closed outer ring plus a split inner ring showed the best performance (0.132 GHz bandwidth at -10 dB reflection) compared to the conventional double closed rings, and the proposed meandered double ring cells. The three designed FSS cells have a small thickness of only  $0.016 \lambda$ .

<input type="checkbox"/>	264 Assessment of Moral Development Among Undergraduate Pharmacy Students and Alumni <i>Open Access</i>	Hijazeen, R.A., Aladul, M.I., Aiedeh, K., Aleidi, S.M., Al-Masri, Q.S.	2022	American Journal of Pharmaceutical Education 86(10),8659, pp. 1088-1094	1
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Hide abstract  [Locate full text](#) [Related documents](#)

Objective. This study's principal aim was to assess the moral development of undergraduate pharmacy students and alumni at a university in Jordan. Methods. Using the Professional Ethics in Pharmacy (PEP) test, the moral reasoning of 512 pharmacy students and alumni was assessed in a cross-sectional design. The main assessment measure was the Principled Morality Score, which reflects an individual's level of moral judgment development and is given as a percentage, where higher values indicate greater moral development. Results. The response rate was 49%. The median Principled Morality Score was 16.7, with no significant differences observed across all five cohorts. No significant differences in median Principled Morality Scores were found between men and women (16.7 vs 20, respectively). Also, no significant differences in median Principled Morality scores were observed between students who had completed the ethics course versus those who had not completed the ethics course at the time of data collection (median Principled Morality Score 20 vs 16.7, respectively). No trends in median Principled Morality Scores were observed. Conclusion. In this study, the professional moral reasoning of prospective pharmacists was lower than expected. A further longitudinal study of the cohort, which attempts to correlate moral development with age, sex, education level, and moral education strategy, is warranted.

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<input type="checkbox"/>	265	A Multi-Objective Array Pattern Optimization via Thinning Approach <i>Open Access</i>	Abdulqader, A.J., Mahmood, A.N., Ali, Y.E.M.	2022	Progress In Electromagnetics Research C 127, pp. 251-261	3
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—In this paper, the possibility of synthesizing a linear antenna array for multiple objectives with the thinning approach is demonstrated. The thinning space is constrained to three cases (side, central, and random) parts instead of a fully filled linear array. In the case of the side part, a set of elements located on both edges of the array are removed with the optimized elements close to the center remaining unchanged. As in the case of the central part, only a set of elements close to the center are removed. In the case of a random selection of elements, the cancellation process is carried out randomly within the sides and the center. Since the amplitude weights of the elements located on the edges of the array have a small amplitude excitation, the method of side thinning gives better results than the other two cases. Moreover, in cases of side and random thinning, the last element of each side is excluded from the thinning process to maintain the aperture size. The convex algorithm (CA) is used to perform such thinning optimization. CA optimization efficiently computes a multi-objective function in coordination with the thinned array technique, such as preserving the main beamwidth in all cases with the reduction of sidelobe levels, generating one or more nulls, and steering the main beam in a certain direction. The simulation results, in all cases, show that 30%–40% of the array elements can be turned off with achieving a multi-objective radiation pattern.

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| <input type="checkbox"/> | 266 | Fuzzy Theory in Fog Computing: Review, Taxonomy, and Open Issues<br><i>Open Access</i> | Al-Araji, Z.J.,<br>Ahmad, S.S.S.,<br>Kausar, N., (...),<br>Ozbilgekahveci, E.,<br>Cagin, T. | 2022 | IEEE Access<br>10, pp. 126931-126956 | 6 |
|--------------------------|-----|--|---|------|--------------------------------------|---|

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Geographically dispersed Fog Computing architecture ubiquitously connected to a range of heterogeneous nodes at the edge of the network can provide cooperative flexible, and variable computations, communications, and storage services. Several fog computing methods, models, and techniques have been used to solve cloud issues. The fuzzy theory has also been used in many aspects of fog computing. Objectives: This work presents a systematic literature review of the use of fuzzy theory in Fog Computing, highlighting the main practical motivations, classification types in research approaches, fuzzy methods used, popular evaluation tools, open issues, and future trends. Methods: The investigations were systematically performed using fuzzy theory in fog computing, and four databases which are ScienceDirect, Web of Science (WoS), Scopus, and IEEE Xplore Digital Library from 2015 to 2022, were used to analyse their performance evaluation, architecture, and applications. Results: 94 articles were selected based on fuzzy theory in fog computing using different methods, models, and techniques, based on the proposed exclusion and inclusion criteria. The results of the taxonomy were divided into five major classes: task and resource management, intrusion detection systems, trust management, and healthcare services. Discussion: Applications requiring real-time, low latency, and quick responses are well suited for fog computing. These studies show that resource sharing improves the fog computing architecture by delivering reduced latency, distributed processing, improved scalability, better security, fault tolerance, and privacy. Conclusion: The majority of the time, research areas on fuzzy theory in fog computing are crucially significant. We conclude that this review will enhance research capacity, thereby expanding and creating new research domains.

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<input type="checkbox"/>	267	Diagnostic value of endoscopy in adult patients with dyspepsia <i>Open Access</i>	Al-Abachi, K.T.	2022	Przegląd Gastroenterologiczny 17(4), pp. 274-279	0
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Introduction: Dyspepsia is a common gastrointestinal (GI) complaint with predominant underlying normal findings or trivial lesions and may be a symptom of serious morbidity. Aim: To assess the significance of endoscopic findings in the case of uninvestigated dyspepsia in adults. Material and methods: This is a single-centre cross-sectional descriptive study of 372 patients (198 females, 174 males) who presented with dyspepsia and underwent endoscopic examination. Demographic, clinical complaints with alarm features, drug use, and endoscopic findings were collected and analysed. Gastric biopsy was performed to detect *Helicobacter pylori* (*H. pylori*) infection. Findings of erosions, ulcers, and neoplasms were regarded as significant lesions. Results: Mean age of patients was 35.7 ±13.5 years. The main presenting symptom of dyspepsia was epigastric pain (61.6%). The endoscopic findings were gastroduodenitis (GD) (47.6%), esophagitis (15.1%), peptic ulcers (7.3%), cancer of the stomach (0.8%), and gastric polyps (0.5%). Non-significant and normal findings represented 70.2% (261/372,  $p < 0.001$ ). Age group ≥ 50 years manifested significant lesions in 45.7% (32/70), and age group < 50 years 26.2% (79/302). Weight loss, anaemia, vomiting, and nonsteroidal anti-inflammatory drugs (NSAIDs) were associated with significant lesions in 85.7%, 84.2%, 32.7%, and 58.3%, respectively. *H. pylori* prevalence in patients without organic lesions was 47.7%. Conclusions: In two thirds of patients presented with dyspepsia, endoscopy revealed minor or normal findings. Age group ≥ 50 years, alarm features, and use of NSAIDs were predictive of significant endoscopic findings. Strict clinical criteria should be adopted before referring patients with dyspepsia to endoscopy.

<input type="checkbox"/>	268	DESIGN OF AN IOT SMART CURRENT CONTROL SYSTEM BASED ON GOOGLE ASSISTANT <i>Open Access</i>	Abduljabbar, A., Alsaydia, O., Mahfoodh, A., Mohammed, R.	2022	Eastern-European Journal of Enterprise Technologies 5(2-119), pp. 86-94	0
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In locations where power is restricted, such as off-grid, solar, and generator-powered houses, considering the capacity of the power source is critical for the effectiveness of home automation systems. During regular power system outages, millions of houses all over the globe are reliant on a fixed current power supply to keep their lights on. In such circumstances, prioritizing and arranging the home's workload is essential. The goal of this paper is to decrease the amount of effort required by the user to manually control a gadget. To connect with the Raspberry Pi and the users, this system makes use of Google Assistant Software Development Kit (SDK), which is offered by Google. Users use voice commands to manage the devices in their homes, check the amount of current available, and chat to the Google Assistant to turn on/off the smart switch. This paper suggests using a sensor, Message Queuing Telemetry Transport (MQTT) protocol, a controller (OpenHAB open source), and an actuator in conjunction with each other (smart switch) has the capability of measuring and monitoring the entire power that is available and making choices based on that knowledge. Finally, the usage of Google Assistant as an artificial intelligence system makes end-user engagement with the smart home more pleasant. The proposed network was executed in both unlimited and limited power or electrical current modes to compare the standard unlimited smart home setup and our current control design. The system was programmed to function based on the proposed algorithm, with a 10 Ampere as a maximum available current. The water heater was considered a low priority load in this trial as a heavy load. In this system's run, the smart controller was continuously monitoring the load, and when the total load reaches 10 Amperes or above it turns off the low priority loads. Thus, preventing the power supply overload

<input type="checkbox"/>	269	EPICARDIAL FAT IN PATIENTS UNDERGO LAPAROSCOPICAL-SLEEVE GASTRECTOMY <i>Open Access</i>	Lolan, F.M., Mahmood, A.S., Al- Gburi, Y.F.	2022	Military Medical Science Letters (Vojenske Zdravotnicke Listy) 91(4), pp. 311-317	0
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Introduction: Obesity is increasingly reported to be a contributing factor to vascular diseases resulting in increased patient morbidity and mortality rates leading to increase healthcare expenses. More precisely, the lipid deposition in cardiac tissues is interesting, due to their direct contribution to the disease initiation, prognosis, and all subsequent patients' fate. We do focus on the determination of the link between changes in body mass index (BMI) and epicardial fat deposition concerning gastric operation. Objective: The objective of this work was to study the relationship between weight reduction and "epicardial thickness" after laparoscopic-sleeve gastrectomy. Methods: Critically-ill patients were recruited from private clinics and out-patients hospital clinics. Forty-two patients undergoing laparoscopic-sleeve gastrectomy due to morbid obesity were included in this research. Patients followed for four months after the operation. Results: The results of this work find there is significant weight reduction in these patients in parallel with a reduction of epicardial fat thickness. Conclusion: Patients who experience laparoscopic-sleeve gastrectomy showed a reduction in weight in a parallel reduction in epicardial fat thickness.

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<input type="checkbox"/>	270	Switched Reluctance Motor Drives Speed Control Using Optimized PID Controller	Ibrahim, M.A., Alsammak, A.N.B.	2022	Przegląd Elektrotechniczny 98(11), pp. 46-50	2
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The switched reluctance motor (SRM) has turned out to be an outstanding resolution for a various appliances. The modern invents of SRM grant consumers to yield advantage of small starting currents , better efficiency and robust structure that illustrates this kind of motor. This article aims at analyzing and modeling the switched reluctance motor speed controller utilizing a Proportional Integral derivative (PID) controller. The non-linear character of the SRM magnetic properties is currently fetched into attention for modeling . These nonlinearities of the switched reluctance machines attain the traditional PID controller an inadequate selection for appliance where high dynamic performance drive is required. Genetic Algorithm (GA) is manipulated to adjust the PID coefficients for the SRM drive. The consequences achieved indicates that the utilization of these established algorithms controller enhances the transient and steady state performances.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	271 A T-Shaped Polyomino Subarray Design Method for Controlling Sidelobe Level <i>Open Access</i>	Abdulqader, A.J., Mohammed, J.R., Ali, Y.A.	2022	Progress In Electromagnetics Research C 126, pp. 243-251	5

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Partitioning large planar antenna arrays into smaller subarrays reduces the system costs and gives many other advantages. In this article, symmetrical T-shaped tetromino subarrays are suggested to perform the partition process of the large planar arrays. Different structures of T-shaped tetromino subarrays have been obtained by simply rotating its orientation by multiple angles of 90 degrees such that the entire planar array aperture can be filled. Two array architectures based on the different T-shaped tetrominos are constructed. The amplitude weights of the designed subarrays are optimized by means of the genetic algorithm such that the resulting array patterns have low sidelobe level. In the first architecture, all the elements in the original array are divided into several subarrays based on three T-shape structures, while in the second architecture all the elements are combined into eight different T-shapes. To control the sidelobe level in the proposed T-shaped tetromino subarrays, a surface mask boundary function is included in the optimization process to find the optimum weights of the T-shaped subarrays. Simulation results showed that the sidelobes can be reduced to less than  $-20$  dB in the first architecture and less than  $-25$  dB in the second architecture, in addition to a significant reduction in the complexity of the feeding network for each one. Moreover, detailed connections of the feeding network circuitry of the used T-shaped tetromino subarray structures are given for practical implementation.

<input type="checkbox"/>	272 Artificial Sweeteners Connotted Vitiation of Rat Metabolic Biomarkers	Abdulqader, M.N., Jasim, S.A.H., Yahya, M.M., Thanoon, I.A.J.	2022	Revista Electronica de Veterinaria 23(3), pp. 296-303	1
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The consumption of non-nutritive sweeteners (NNS) has markedly enlarged in recent years universally, due to multiple factors including the increased prevalence of obesity and hyperglycemia. Studies have inconclusive results about NNS use, some evidence states that it contributes to weight gain and an increase in appetite, however, others say that it plays a significant role in reducing weight and controlling diabetes. In this study we aim to examine the effects of multiple non-nutritive sweeteners on body weight, fasting blood sugar, and total cholesterol (TC), triglycerides (TG), high-density lipoprotein (HDL), and low-density lipoprotein (LDL) using an in vivo rat model. In the results, it was found that stevia reduced the weight of the rat by 50 grams after eight weeks and in the rest of the groups, the weight remained almost the same except for sucrose followed by acesulfame-k which represented a marked increase in weight. There was an overall increase in total cholesterol and LDL and a reduction in HDL in all groups. Stevia, aspartame, and saccharin were found to be most beneficial with respect to reducing weight and controlling the level of fasting blood sugar. Additionally, the results from multiple studies have contradicting conclusions which highlight the uncertainty in the effects of NSS.

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- 273 An embedded intrusion detection and prevention system for home area networks in advanced metering infrastructure *Open Access* Qaddoori, S.L., Ali, Q.I. 2022 IET Information Security Article in Press 0

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With the widespread adoption of smart metres in the power sector, anomaly detection has become a critical tool for analysing customers' unusual consumption patterns and network traffic. Detecting anomalies in power consumption and communication is primarily a real-time big data analytics issue regarding data mining along with a vast number of parallel streaming data from smart metres. In this study, an embedded Intrusion Detection and Prevention System (IDPS) is proposed as a Wifi-based smart metre for Home Area Networks (HANs) in the Advanced Metering Infrastructure (AMI) network. So, the proposed system employs one machine learning model based on IDPS to guard the HAN network from various attacks that utilise the Message Queueing Telemetry Transport protocol between the smart metre and IoT sensors. Also, it uses two machine learning models to detect the abnormality in periodic and daily data metering respectively. So, multiple algorithms have been used to find the suitable algorithm for each of the three anomaly detection models. These models have been evaluated and tested using real data sets regarding resources usage and detection performance to demonstrate the efficiency and effectiveness of using machine learning algorithms in the built anomaly detection models. The experiments show that the anomaly detection models performed well for various abnormalities.

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<input type="checkbox"/>	274	Mathematical modeling and engineering design of multi-level inverter based on selective harmonic elimination	Salman, L.S., Al-Badrani, H.	2022	Przeład Elektrotechniczny 98(11), pp. 83-86	0
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SHE is a well-studied alternative to common PWM methods. This work shows how to use a Newton Raphson method to selectively reduce higher or lower order harmonics while preserving the needed fundamental voltage in asymmetrical multilevel inverter. This strategy can be used with any number of levels in asymmetrical multilevel inverter. For example, a 9-level and 27-level asymmetrical multilevel inverter is analyzed in this research, and the optimal angles are determined to eliminate the 3rd, 5th and 7th harmonics for nine level inverter and to eliminate twelve odd harmonic from 3rd harmonic to 25th harmonic for twenty seven level inverter.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	275 Joint Optimization of Sum and Difference Patterns with a Common Weight Vector Using the Genetic Algorithm <i>Open Access</i>	Mohammed, J.R., Aljaf, D.A.	2022	Journal of Telecommunications and Information Technology 3, pp. 67-73	1

Hide abstract  [Locate full text](#) [Related documents](#)

A monopulse searching and tracking radar antenna array with a large number of radiating elements requires a simple and efficient design of the feeding network. In this paper, an effective and versatile method for jointly optimizing the sum and difference patterns using the genetic algorithm is proposed. Moreover, the array feeding network is simplified by attaching a single common weight to each of its elements. The optimal sum pattern with the desired constraints is first generated by independently optimizing amplitude weights of the array elements. The suboptimal difference pattern is then obtained by introducing a phase displacement  $\pi$  to half of the array elements under the condition of sharing some sided elements weights of the sum mode. The sharing percentage is controlled by the designer, such that the best performance can be met. The remaining uncommon weights of the difference mode represent the number of degrees of freedom which create a compromise difference pattern. Simulation results demonstrate the effectiveness of the proposed method in generating the optimal sum and suboptimal difference patterns characterized by independently, partially, and even fully common weight vectors.

<input type="checkbox"/>	276 MIMO System Based-Constrained Quantum optimization Solution	Sabaawi, A.M.A., Almasaoodi, M.R., Gaily, S.E., Imre, S.	2022	2022 13th International Symposium on Communication Systems, Networks and Digital Signal Processing, CSNDSP 2022 pp. 488-492	5
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The multiple-input multiple-output (MIMO) systems provide high data rates and spectral efficiency performance. However, the fundamental problems with these technologies are their rising computational complexity and power consumption. The aim of this paper is to minimize the total transmit power of the MIMO system subject to the target bit rate of the user. The procedure of assigning different transmit power values to transmitting antennas and selecting the optimum total transmit power with respect to the user's bit rate constraint is computationally hard, especially when the size of the possible transmit power scenarios arises exponentially. To this end, an efficient quantum strategy called Constrained Quantum optimization Algorithm (CQOA) is proposed in this work, which searches faster (exponentially) for the optimum result. The proposed quantum strategy is compared with the various optimization algorithms such as Genetic Algorithm (GA). Simulation results highlight the fact that the CQOA outperforms the GA in terms of computational complexity.

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<input type="checkbox"/>	277	A Circular Array with Improved Focusing Properties <i>Open Access</i>	Mohammed Fwzi, M.Z., Sayidmarie, K.H.	2022	Progress In Electromagnetics Research C 126, pp. 13-22	1
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A concentric circular array consisting of two rings is proposed to focus the radiated field at a point in the near-field zone. In the proposed two-ring array, the radius of the outer ring was chosen so that the radiated fields from all elements on the two rings add constructively at the focal point, thus no phase shifter is needed in this design. The  $N$  elements of the inner ring are uniformly excited in unity amplitude and zero phase, while the  $M$  elements on the outer ring are excited uniformly in phase, and given uniform magnitude excitations of  $N/M$ . Therefore, two deep nulls are achieved on both sides of the focus to enhance the focal width. The focusing properties are investigated by exploring the array parameters, such as variation of the focused field along the normal to the array, field distribution on the focal plane, and depth of field (size of the focal spot). Computer simulations using the MATLAB environment are performed by point source radiators. For verification, the array was simulated using the CST microwave studio, and the obtained results showed good agreement. The array is useful for hyperthermia and imaging applications.

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| <input type="checkbox"/> | 278 Primary neonatal sacrococcygeal neuroblastoma masquerading as a teratoma: A case report<br><i>Open Access</i> | Edan, O.A., Jawhar, N.M.T. | 2022 | Journal of Neonatal Surgery<br>11 | 0 |
|--------------------------|---|----------------------------|------|-----------------------------------|---|

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Background: Neonatal tumors comprise about 2% of all pediatric malignancies, with neuroblastoma having the highest incidence. Neuroblastoma involving the adrenal medulla and sympathetic ganglia is the most typical scenario in infancy, while the pelvic variant is rare. We report this case because of the unusual and rare presentation of neuroblastoma in a newborn baby mimicking sacrococcygeal teratoma. Case Presentation: A newborn male baby presented with a firm sacral mass, about 5 x 7 cm, with normal overlying skin. MRI revealed an intrapelvic mass extending to the sacral region encasing the coccyx. After preparation, complete tumor excision was performed, and the diagnosis of neuroblastoma was confirmed by histological and immunohistochemical study. Conclusion: Primary neonatal neuroblastoma presenting as a sacrococcygeal mass is a rare and atypical clinical finding of neuroblastoma. It is hard to diagnose this sort of tumor preoperatively unless the mass is subjected to histological and immunohistochemical analysis after tumor excision.

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<input type="checkbox"/>	279	Enhanced Speed Control of a Drive with Rejection of Periodical Disturbances	Phung, V.T., Al-Badrani, H., Pacas, M.	2022	IEEE Open Journal of the Industrial Electronics Society 3, pp. 551-560	1
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The present work deals with the enhancement of the speed control of an electrical drive under a repetitive mechanical load. In such a system, the load torque changes periodically according to the angular position of the rotor causing speed oscillations. In this article, two methods for mitigating speed oscillations are proposed. One is based on a load torque feedforward control scheme, where the load torque is presented in the form of Fourier series and estimated via the calculation of the Fourier coefficients by taking into account the cyclic characteristics of the driven machine. The other method is based on harmonic speed control that aims to mitigate specific harmonics in the speed error. The design procedure of the harmonic speed controller is presented in detail, providing a full insight into the use of the harmonic controller. Experiments were used to verify and compare the effectiveness of the two proposed methods.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	280 IoT and Artificial Neural Network-Based Water Control for Farming Irrigation System	Al-Faydi, S.N.M., Al-Talb, H.N.Y.	2022	2022 2nd International Conference on Computing and Machine Intelligence, ICMI 2022 - Proceedings	4

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This paper introduced a highly reliable smart irrigation system with the Internet of objects or Things (IoT) Technique and neural network architecture. Smart systems using artificial neural networks (ANN) integrated with real-time hardware applications are becoming very popular in the area of IoT. This paper aims to save the waste of water for the irrigation process by utilizing an IoT and using an artificial neural network with different sensors such as FC-28 soil sensor and DHT11 sensor for measuring humidity and temperature parameters. The designed system uses two microcontrollers (Arduino and Node MCU ESP 8266) to automatically control the water pump state to be ON/OFF and control the flow of water for irrigation based on different input parameters. Input sensors measure environmental parameters such as soil moisture, air temperature, and air-humidity factors. The designed control system includes both hardware components and software programming. The ANN technique is essential for supporting the automatic control of IoT-based agriculture irrigation systems and properly regulating water use.

<input type="checkbox"/>	281 Development of HPLC Method for Simultaneous Determination of Ibuprofen and Chlorpheniramine Maleate <i>Open Access</i>	Aldewachi, H., Omar, T.A.	2022	Scientia Pharmaceutica 90(3),53	2
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One of the most prevalent over-the-counter cold and cough medications is the chlorpheniramine maleate (CPM)–ibuprofen (IBF) combination. A reversed-phase high-performance liquid chromatography (RP-HPLC) method was effectively optimized and developed for the simultaneous detection of chlorpheniramine maleate and ibuprofen in a pharmaceutical formulation. The mobile phase for the RP-HPLC method was an isocratic combination of acetonitrile and 0.01 M acetate buffer at pH 3.8 (55:45; v/v) on an Eclipse Plus C18 reversed phase column. An ultraviolet (UV) detector with a wavelength of 225 nm was used to detect the analytes at a flow rate of 1.0 mL/min. CPM and IBF were satisfactorily eluted, with mean retention times of 2.09 and 6.27 min, respectively. The approach was shown to be linear ( $R^2 > 0.9998$  for CPM and  $0.9992$  for IBF), precise (% RSD 3.02% for CPM and 3.48% for IBF), accurate (% recoveries 97.7–98.9% for CPM and 101–104.5% for IBF), specific, easy to use, sensitive, quick, and robust. Limits of detection (LODs) were found to be 10 and 27  $\mu\text{g}/\text{mL}$  for CPM and IBF, respectively. Without interference from excipients, the validated method could be utilized in regular quality control analysis of various dosage combinations of hard gelatin capsules containing CPM and IBF.

<input type="checkbox"/>	282	THE RELATIONSHIP BETWEEN DEMOGRAPHIC CHARACTERISTICS OF EPILEPTIC PATIENTS AND THE QUALITY OF LIFE	Mahmood, H.J., Fathi, A.M., Abdullah, M.K., Ibrahim, R.H.	2022	Malaysian Journal of Public Health Medicine 22(2), pp. 35-42	1
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to determine the quality of life for epileptic patients, a total of 111 patients with at least one epileptic episode in their lifetime, were evaluated with weighted self-report questionnaire QOLIE-89. The majority were women with (59.5%), had completed their secondary education (56.8%) and 46% of them were housewife. The most common type of seizures recorded were simple focal seizures, with a rate of 59.5%. It was found to have a high score on all subscales of the QOLIE-89 questionnaire, which indicates the existence of a high quality of life, while a positive significant subscales were correlated with each other. In addition, their individual characteristics were not significantly related to overall quality of life ( $p > 0.05$ ). The quality of life of epileptic patients was found to be high, while it is not related or influenced by their characteristics, their individual or those of their medical history. These findings conclude that the efforts to improve the management of these individuals through a better understanding of the degree of satisfaction of their lives by clinicians is needed and psychological counselling of both individual participant and the people surrounded by them is at most needed. For this reason, a more detailed study on the subject is recommended.

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<input type="checkbox"/>	283	New Constrained Quantum Optimization Algorithm for Power Allocation in MIMO	Sabaawi, A.M.A., Almasaoodi, M.R., Gaily, S.E., Imre, S.	2022	2022 45th International Conference on Telecommunications and Signal Processing, TSP 2022 pp. 146-149	6
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Multiple-input multiple-output (MIMO) has acquired significant interest as the demand for high data rates has increased and, it is regarded as a key technique in 5G wireless technology. Previously, the water filling algorithm (WFA) has been found as an effective method for power allocation channels in (MIMO). However, this solution is computationally intractable owing to the increasing size of channels. To address this problem, this paper applies the constrained quantum optimization algorithm (CQOA) for reducing the overall transmit power and the computational complexity of the MIMO downlink system. An analytical comparison has been performed between the CQOA and water filling algorithm-based binary searching algorithm (WFA-BSA). Numerical results show the efficiency of the CQOA against the WFA-BSA in terms of power and computation.

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| <input type="checkbox"/> | 284 | IDENTIFICATION OF SURFACE GLYCOPROTEIN MUTATIONS OF SARS-CoV-2 IN ISOLATED STRAINS FROM IRAQ   [ИДЕНТИФИКАЦИЯ МУТАЦИЙ ПОВЕРХНОСТНОГО ГЛИКОПРОТЕИНА SARS-CoV-2 В ШТАММАХ, ИЗОЛИРОВАННЫХ В ИРАКЕ]<br><i>Open Access</i> | Dawood, A.A.,<br>Jasim, B.I., Al-Jalily,<br>O.R. | 2022 | Medical Immunology (Russia)<br>24(4), pp. 729-740 | 3 |
|--------------------------|-----|---|--|------|---|---|

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Background: The global pandemic of coronavirus disease is a societal, economic, and public-health crisis that is still underway. The spike glycoprotein of SARS-CoV-2 is one of the primary ingredients for virulence, tissue tropism, and host areas. Aim: This study aimed to determine mutations in the S protein of the Iraqi COVID-19 isolates. Full genome sequences of Iraqi strains were obtained from GISAID. Using statistical saturation mutagenesis and other informatics methods, we investigated 20 sequences of SARS-CoV-2 S protein missense mutation isolates in Iraq selected from NCBI. The following mutations were detected for all the strains under study compared to the wild type: L452R, A522V, E583D and D614G. The number of mutations in the strains was different depending on the location of the state from which the sample was collected. The D614G mutation was found in 19 strains. One strain had three mutations, while the other was a wild form strain. The structure of the mutant protein changes dramatically, as does the energy of the atoms concerning the docking position, affecting the protein's stability. The mutation sites would improve the S protein's stability. Molecular docking of RBD-ACE2 is affected differently by residues L452R and A522V.

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| <input type="checkbox"/> | 285 | Array Pattern Restoration under Defective Elements<br><i>Open Access</i> | Mohammed, J.R.,<br>Abdulqader, A.J. | 2022 | Progress In Electromagnetics Research C<br>123, pp. 17-26 | 4 |
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The defective array elements which are unavoidable due to the long full-time antenna system operation directly affect its radiation pattern, sidelobe level, directivity, and the system performance. Therefore, reducing these undesirable effects is a main interest in designing such arrays in practice. In this paper, a partially compensating method based on the genetic optimization algorithm is proposed to mainly reduce those undesirable effects of the defected elements. Unlike the existing fully compensating methods where all of their active elements were optimized to compensate for the effects of the defected elements, the proposed method optimizes the excitation weights of some optimally selected active-elements. Thus, the whole array elements do not need to be redesigned again as in the case of the fully compensating methods. This greatly simplifies the design implementation of these arrays. Moreover, a very large defective percentage ranging from 5% up to 50% has been considered to demonstrate the effectiveness of the proposed method. Furthermore, the drawback effects of the randomly failing elements at the array center have been highlighted, and some suggestions have been provided.

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<input type="checkbox"/>	286	Dual-Band MIMO Antenna with Defected Ground Structure for Sub-6 GHz 5G Applications <i>Open Access</i>	Sabaawi, A.M.A., Muttair, K.S., Al-Ani, O.A., Sultan, Q.H.	2022	Progress In Electromagnetics Research C 122, pp. 57-66	10
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In this work, a dual-band compact MIMO antenna for sub-6 GHz 5G applications has been designed, simulated, and implemented. Firstly, a single patch antenna was designed and simulated, and its dimensions were adjusted to exhibit a dual band performance at 3.6 GHz and 5.9 GHz. A two-element MIMO structure was then designed with a defected ground structure, and the S-parameters were recorded. The results showed that the designed MIMO antenna exhibited multiband performance at the sub-6G frequency band with almost omnidirectional radiation pattern and acceptable gain. The achieved results are promising, making the proposed antenna a good candidate for 5G applications. The proposed antennas were fabricated, and their basic parameters such as return loss and radiation pattern were tested experimentally and compared with simulation results. An acceptable agreement was achieved between measurement and simulation results.

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| <input type="checkbox"/> | 287 | Design and Implementation of Multi-Band Fractal Slot Antennas for Energy Harvesting Applications<br><i>Open Access</i> | Sabaawi, A.M.A., Sultan, Q.H., Najm, T.A. | 2022 | Periodica polytechnica<br>Electrical engineering and computer science<br>66(3), pp. 253-264 | 5 |
|--------------------------|-----|--|---|------|---|---|

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This paper introduces a design and optimization procedure of multiband fractal slot antennas for RF energy harvesting applications. The antennas were simulated using CST Studio Suite. A parametric study is conducted to determine the critical structural parameters that influence the antenna performance. The parametric study included varying the size ratio of the structure, the shape of the ground plane and the length of the feeding inset. Simulation results showed that the proposed antennas in this work exhibit multiband performance and they offer the possibility of controlling the resonant frequency at any specific frequency band. The optimized antenna has seven resonant frequencies at 1.8 GHz, 2.4 GHz, 3.45 GHz, 3.6 GHz, 4 GHz, 4.6 GHz and 5.3 GHz covering several ambient communication networks (GSM, UMTS and 5G), Bluetooth and WLAN systems. Simulation results shows that Antenna 1 has achieved a gain of more than 4.5 dBi at all the resonant frequencies with a radiation efficiency ranged between 87%-95%; whereas Antenna 2 has achieved more than 3 dBi gain at lower frequencies while reaching around 7 dBi at higher frequencies with a radiation efficiency ranged between 80%-97%. Finally, two fractal slot antennas were fabricated and tested in the lab to validate the simulation results and to proof the concept of the feasibility of this type of antennas for this application. Experimental results showed a good agreement with simulations.

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<input type="checkbox"/>	288	Investigation of Evolving Multiple Access Technologies for 5G Wireless System	Yonis, A.Z., Nawaf, A.	2022	8th IEC 2022 - International Engineering Conference: Towards Engineering Innovations and Sustainability pp. 118-122	1
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Large demand for new wireless data flow and services, the development of the next-generation mobile (NGM) system of communication has been prioritized, with increased data rates, latency, and connection requirements. non-orthogonal multiple access (NOMA) techniques have recently been improved and suggested to NGM and downlink. NOMA numerous users to share a single (frequency, time, coding, or spatial) channel at the same time, resulting in improved spectrum efficiency and energy efficiency. The emerging various access technologies for the fifth generation of cellular networks (5G) wireless systems are the subject of this research article. The paper focuses on the presence of excessive multiple-access interference, which is generated by spectrum sharing among users, which is a characteristic of NOMA systems.

<input type="checkbox"/>	289	Analysis of Frequency Splitting Phenomenon in WPT for Intelligent Applications	Nafiaa, R.E., Yonis, A.Z.	2022	2022 IEEE International Conference on Automatic Control and Intelligent Systems, I2CACIS 2022 - Proceedings pp. 174-179	3
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Wireless Power Transfer (WPT) is considered an important technology in recent years especially the magnetic resonance coupling technique (MRC), and also considered a great technology where have numerous advantage such as reliability, safety, and getting rid of cables that cause damage to the device, and flexibility. Due to the high development and complexity of the smart device industry, it is necessary to rely on a technology that facilitates the handling of modern smart applications. The paper clarified a simple model of technology and illustrated the factors that led to producing a splitting in frequency, in the result reaches that the coupling factor changing with different frequencies causes a splitting in frequency and this is called the FSP frequency splitting phenomenon. Some technique has been discussed to eliminate this problem.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	290 Plasma Properties of a Low-Pressure Hollow Cathode DC Discharge <i>Open Access</i>	Ahmed, M.A., Algwari, Q.T., Younus, M.H.	2022	Iraqi Journal of Science 63(6), pp. 2532-2539	0

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The current study involves an experimental investigation of plasma main parameters of a DC discharge with a hollow cathode (HCD) geometry in air using apertures of different diameters from the hollow cathode (1, 1.5, 2, and 2.5 cm). A tiny Langmuir probe is used to investigate the plasma properties. The HCD was operated at constant power of 12.4 W and gas pressures ranging between 0.1 to 0.8 torr. It was observed that the operational conditions strongly affect the electron temperature and density, while the hollow cathode diameter has not much influence. The main important observation was that at relatively high air pressure (>0.4 torr) two electron temperatures were obtained, while at relatively low pressure (<0.4 torr), a single electron temperature was found. The results showed that the measured electron temperature decreased nearly linearly with increasing gas pressure.

<input type="checkbox"/>	291 EEGs Signals Artifact Rejection Algorithm by Signal Statistics and Independent Components Modification	Hussein, H.M., Abdalla, K.K., Mahmood, A.S.	2022	Lecture Notes on Data Engineering and Communications Technologies 126, pp. 275-290	1
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Electroencephalography (EEG) signals acquire a lot about the brain functionality, its different patterns employed in brain diseases recognition, and recently used in Brain Computer Interface (BCI) systems. Automatic recognition of these patterns gains a lot of attention nowadays. These EEG signals are contaminated with artifacts like eye and muscle movement artifacts. Fine tuning of these signals and automatic rejection of artifacts prior to feature extraction is straightforward. In this paper, a novel method for artifact cancelation based on signal statistics with modification of independent sources extracted by Independent Component Analysis (ICA) of EEG signals is suggested. Visual inspection of the reconstructed signals shows the validity of the proposed method in artifact rejection. Moreover, this method did not require any extra information channel attached with EEG signals.

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<input type="checkbox"/>	292	Energy Detection Based Multi-Bands Spectrum Sensing Using Adaptive Threshold	Ali, D.M., Abdulla, M.Y.	2022	Al-Muthanna 2nd International Conference on Engineering Science and Technology, MICEST 2022 - Proceedings pp. 37-42	0
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The primary notion of cognitive radio (CR) focuses on a sensing technique, that is a significant operation in the process of discovering free holes in the licensed and unlicensed bands. To proclaim the free holes, energy detection (ED) is utilized in this work, which is classified as one of the detection methods. In this case, determining the value of the threshold is critical in determining the current PU's status. The probability of detection ( $P_d$ ), and the probability of total error ( $P_{te}$ ) are the sensing metrics used to evaluate the efficiency of the ED approach. This work presents a description and evaluation of a spectrum sensing (SS) system based on ED. In this study, conventional energy detectors and adaptive threshold energy detectors (a proposed approach) based on the average of the lowest and the highest energy bands were introduced. The simulation results indicate the adaptive threshold approach outperformed the conventional ED method at low signal-to-noise ratio (SNR) values of less than (5dB). Computer simulations were performed using LabVIEW NXG.

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<input type="checkbox"/>	293	Correlation between Seminal Fructosamine and Glycosylation Gap and Some Sex Hormones in the Young Infertile Male in Mosul City <i>Open Access</i>	Salim, M.J., Alkataan, M.A.	2022	Iraqi Journal of Pharmaceutical Sciences 31(1), pp. 293-297	0
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Infertility represents a growing health problem in Mosul city and worldwide. Infertility defined as a failure to induce pregnancy after unprotected sexual intercourse for more than 12 months. Infertility in male is a multifactorial complex pathology that leads to different types of problems. This work try to explore the correlation between glycosylation gap and seminal Fructosamine and another parameter in the young male patient in Mosul city. The study included 50 subjects with age range 19-29 years with BMI 18-26 Kg/m<sup>2</sup>, from October 2019 to July 2020. The infertility group include 25 patients newly diagnosed with infertility before starting any treatment; have no infection and no structural abnormality. The control group included 25 healthy subjects. Hemoglobin A1c, serum Fructosamine, Serum and seminal testosterone, estradiol and testosterone: estradiol ratio.in addition to some plasma trace element as K, Mg and Zn also measured. There was a significant elevation in the glycosylation profile in the infertile male in compare to control ( $p < 0.05$ ). The results of this work showed that there was a significant elevation in glycosylation gap in the infertile group ( $p < 0.01$ ). Testosterone and Testosterone/Estradiol ratio significantly reduced in the infertile group in comparison to control group ( $p < 0.0004$  and  $0.0002$  respectively). Serum and Seminal plasma Testosterone/Estradiol ratio showed no significant changes between the two groups ( $p > 0.05$ ). In conclusion, there was a significant positive correlation seminal plasma fructosamine and glycosylation gap in infertile male group.

- | Document title  | Authors                                       | Year | Source   | Cited by |
|---|---|------|--|----------|
| <input type="checkbox"/> 294 Development of Novel Paracetamol/Naproxen co-crystals for Improvement in Naproxen Solubility<br><i>Open Access</i> | Al-Dulaimi, A.F., Al-Kotaji, M., Abachi, F.T. | 2022 | Iraqi Journal of Pharmaceutical Sciences<br>31(1), pp. 202-219 | 0        |

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Co-crystals are new solid forms of drugs that could resolve more than one problem associated with a drug's formulation like solubility, stability, bioavailability, mechanical and tableting properties. This work aims to prepare multi-drug co-crystals consisting of paracetamol and naproxen to improve the solubility performance. A preliminary theoretical study for estimating the possible bonding between the co-crystal components (paracetamol and naproxen) was performed using the ChemOffice program. The solvent evaporation method was used to prepare paracetamol/naproxen co-crystal in three different molar ratios. The characterization of the prepared co-crystals was performed by fourier transform infrared spectroscopy, thermogravimetric analysis, differential scanning calorimetry, powder x-ray diffraction, and field emission scanning electron microscopy. In addition, a solubility study was conducted to compare the water solubility of pure paracetamol and naproxen with co-crystals solubility. The result of the theoretical bonding study revealed a high possibility for bonding between paracetamol and naproxen. The solvent evaporation technique was a successful method for the production of paracetamol/naproxen co-crystals in the three explored molar ratios 1:1, 2:1, and 1:2, which was proved by the different characterizing techniques. The solubility study exhibited an enhancement in naproxen solubility by more than two times in (1:1) and (1:2) paracetamol/naproxen co-crystals in addition to a little increase in paracetamol solubility. In conclusion, this work succeeded in the formation of new paracetamol/naproxen co-crystals, which can be considered as a new promising technique for the formulation of these two drugs with an obvious enhancement in crystallinity and naproxen solubility. This could be exploited in the preparation of tablets with possible improvement in dissolution and bioavailability. However, further work is needed to prove this assumption.

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| <input type="checkbox"/> | 295 | Evaluation of the Detrimental Effects of some Antiepileptic Drugs on the Height and Weight of Children with Epilepsy<br><i>Open Access</i> | Mahmood, A.S., Al Mallakhdeer, A.S., Alkataan, M.A., Hasan, M.S. | 2022 | Iraqi Journal of Pharmaceutical Sciences<br>31(1), pp. 241-245 | 1 |
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Growth is a multifactorial process influenced by genetic, nutritional, hormonal, psychosocial and other factors including the general health of a child. Epilepsy is defined as a chronic condition characterized by recurrent clinical events or epileptic seizures, which occur in the absence of a metabolic or toxic disease the drugs that are used in the treatment of this condition can affect patients' growth due to their mechanisms of action. This study aimed to evaluate the effect of some antiepileptic drugs on growth (height and weight) in children with epilepsy. This work involved 51 newly diagnosed children with a different form of epilepsy (Generalized, absent and partial). Patients were collected from the outpatient's clinic in Al Salam teaching hospital and private clinic in Mosul city from July 2018 to July 2020. Patients were divided into three groups of 17 patients each according to the treatment (group one patients on Carbamazepine monotherapy with dose mean  $13.3 \pm 4.8$  mg/Kg, group two patients on Valproic acid monotherapy with a dose of  $14.4 \pm 3.3$  mg/kg and the last group involve patient on combined therapy Carbamazepine  $10.8 \pm 5.8$ mg/Kg plus  $19.7 \pm 8.8$  mg/Kg of Valproic acid. Patients ages range from 5-11 years, with an Initial BMI range of 12-20. The results of this work showed that Carbamazepine monotherapy caused no significant effect on both BMI values after 6 and 12 months of treatment. Valproic acid monotherapy significantly elevated BMI after 6 and 12 months of treatment. Combined therapy showed no significant effect on BMI. The patient's centile height significantly elevated after 6 and 12 months of Valproic acid compared to the normal growth according to the growth chart. While both Carbamazepine and combined therapy showed no significant change in comparison with the normal growth according to the growth chart. In conclusion, children with epilepsy who use antiepileptic drugs need a restricted monitor policy for their growth, especially those on Valproic acid.

<input type="checkbox"/>	296	Design and Development of Smart Umbrella Based on Iot Technology	Jayamani, K., Al-Sanjary, O.I., Mohammed, M.N., Alneamy, J.S.M.	2022	2022 IEEE 18th International Colloquium on Signal Processing and Applications, CSPA 2022 - Proceeding pp. 210-213	3
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The connection among things and humans through the internet for various applications like weather monitoring, healthcare systems, smart cities, home automation and traffic light control has been established by the Internet of Things (IoT). Keeping abreast of the digital world, majority of industries mainly aim to predict the changes in the market and in this study, the development of an IoT smart umbrella system for the measurement of rainfall is presented. The system is used to predict real-Time weather conditions using smartphone. Such a season management system is analyzed using Temperature and Humidity sensors linked to the Raspberry pi controller, after which details of the weather are displayed in the smart phone screen through an SMS. Additionally, the system is connected with a solar system supplying the raspberry pi system that acts as a power reserve for recharging gadgets.

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| <input type="checkbox"/> | 297 | Performance Optimization of MASnI3-based Perovskite Solar Cells   [Optymalizacja wydajności ogniw słonecznych perowskitowych opartych na MASnI3] | Thanoon, H.F., Al-Jammas, N.A.S., Sabaawi, A.M.A. | 2022 | Przegląd Elektrotechniczny 98(6), pp. 172-175 | 1 |
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Solar cells of hybrid organic-inorganic perovskite have attracted researchers and scientists all over the world. Perovskite solar cells outperform conventional silicon solar cells by achieving higher conversion efficiency with a more stable performance. In this paper, a typical perovskite solar cell consists of 6 principal layers of materials: a protective glass layer, thin fluorine Doped Tin Oxide (FTO), Cd<sub>0.5</sub> Zn<sub>0.5</sub>S as electron transportation layer (ETM), MASnI<sub>3</sub> as perovskite active layer, CuSCN as hole transportation layer (HTM) and another gold (Au) electrode were utilized. This paper summarizes the work that centred on the selective use of composite materials of the perovskite solar cell with a variation of the perovskite layer thickness. An optimization procedure is applied to increase the conversion efficiency and enhance the overall performance by varying the thickness and doping concentration of the main cell layers (i.e. ETM, absorber and HTM). The results showed that, by employing the optimum parameters, the conversion efficiency was increased from 12.86 to 26.68%.

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<input type="checkbox"/>	298	Modelling and Analysis of SA-SPV System with bi-directional inverter for lighting load   [Modelowanie i analiza systemu SA-SPV z dwukierunkowym falownikiem do obciążenia oświetleniowego]	Ibrahim, M.H., Ibrahim, M.A., Khather, S.I.	2022	Przegląd Elektrotechniczny 98(5), pp. 126-129	1
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The standalone solar photovoltaic system (SA-SPV) is an appealing alternative for carrying out the electrification process in rural regions through packages in lots of countries. The photovoltaic systems are always supplied with storage facilities that are backed with battery power for the usage of stored power in the course of the nighttime. Availability of bidirectional converter guarantees to improve the utility of those SA-SPV systems to generate, feed, and store power to nearby micro-grids. Additionally, the functioning of systems could be increased to optimized levels by reducing the power losses that are experienced at sub-system stages in the standalone solar photovoltaic system. The present research includes HOMER Pro for simulation of power performance (7 kWp) SA-SPV system mounted in poultry warehouse in Erbil, Iraq to estimate power losses cause for the stand-alone layout. The system is supplied with battery storage (18kWh) this is used for providing power for night hours poultry warehouse lights up to  $\approx 7$  hours/day. The outcomes of the simulation presented that once the SA-SPV is converted to a grid-connected system the system will deliver the light load up to  $\approx 11$  hours by combining a bi-directional converter. It also highlighted that the SPV system will produce an overall 9891 kWh/year on the site in which 4476 kWh is to be supplied to the nearby single-phase microgrid. It accounts for electricity loss if the system is kept to function as an SA-SPV layout.

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<input type="checkbox"/>	299	Design of mmWave Multi-sector array Using Bowtie Antenna Elements for 5G Mobile Base Stations   [Projektowanie wielosektorowej macierzy mmWave z wykorzystaniem elementów anteny Bowtie dla mobilnych stacji bazowych 5G]	Younus, K.M., Sabaawi, A.M.A.	2022	Przegląd Elektrotechniczny 98(5), pp. 115-120	0
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This paper proposes a compact multi-sector array structure based on bowtie antenna elements. The designed array consists of three (1x8) linear arrays to cover 360°. The array is designed to operate at 28 GHz on an RT/Duroid 5880 substrate to meet the high-frequency specifications with a thickness of 1.575 mm and a dielectric constant of 2.2, while the dissipation factor is (0.0009). Each array sector has a dimension of 30.17 mm as width and 6.4 mm as length. A beam steering performance is proved with the capability of switchable beams to offer directional/omnidirectional choices. Simulations results showed that the proposed array exhibits excellent reflection coefficient characteristics along with a high gain of up to 13.5 dBi and high radiation efficiency. Two configurations of array sectors are presented to introduce a flexible control of the array beams.

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| <input type="checkbox"/> | 300 | PEDIATRIC SUBTYPES OF VENTRICULAR SEPTAL DEFECTS WITH PERCENT CLOSURE AT IBN-SENA TEACHING HOSPITAL IN THE CITY OF MOSUL – IRAQ<br><i>Open Access</i> | Mustafa, B.Sh., Al-Bayati, A.A., Abdulrazzaq, G.M., Merkhan, M.M. | 2022 | Military Medical Science Letters (Vojenske Zdravotnicke Listy) 91(2), pp. 82-88 | 2 |
|--------------------------|-----|---|---|------|---|---|

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The ventricular septal defect (VSD) is a congenital lesion characterized by the presence of an opening between cardiac chambers. The treatment might involve medical therapy to control symptoms or in certain cases, surgical resuscitation might be required. Objectives: The study was conducted to establish a database about the prevalence and pattern of VSD and their prognosis in children referred to by echocardiography in Ibn-Sena Teaching Hospital over the period of March 2019 to January 2020. Method: The present study is a prospective descriptive study conducted on all patients diagnosed with cardiac lesions revealed by echocardiography. The sample included in the study involves newborns (day 1) to 14-years-old children. Result: Out of 500 children included in the study; most of these cases were cyanotic congenital heart lesions and out of which two-third were perimembranous defects. Conclusion: The study concluded a higher prevalence of non-cyanotic lesions and peri-membranous type is the commonest VSD lesion.

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<input type="checkbox"/>	301	SMART HYDROGEL POLYMERS FOR DRUG DELIVERY <i>Open Access</i>	Ali, Z.H., Alkotaji, M.	2022	Military Medical Science Letters (Vojenske Zdravotnicke Listy) 91(2), pp. 105-118	2
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Smart hydrogels are special type of hydrogels that undergo solution-gelation transition in response to alterations in the environment. Solution-gel transformation is brought about through either physical or chemical cross-linking that occur between the hydrogel chains. Various stimulating factors have been identified to be responsible for the change in the physical state of the intelligent hydrogel. The most important triggering factors are the temperature, pH, ions, electrical signalling, magnetic field, glucose, light and others. Each of these stimulating factors can trigger the swelling of the hydrogel through unique mechanism. Many of these triggering factors are characteristics of the biological systems which make the smart polymers quite beneficial for different biomedical applications. Numerous natural and synthetic polymers have been distinguished to act as smart materials. These polymers impressed the scientists to use them in many biomedical and industrial applications such as drug delivery systems, gene therapy applications, tissue engineering and many other applications.

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<input type="checkbox"/>	302	Multiband Handset Antenna System for UMTS/LTE/WLAN/ Sub-6 5G and mmWave 5G Future Smartphones <i>Open Access</i>	Sabaawi, A.M.A., Younus, K.M.	2022	Periodica polytechnica Electrical engineering and computer science 66(2), pp. 116-121	2
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In this paper, a new antenna system for rapidly emerging multifunction devices is presented. The proposed antenna system consists of four antenna components each one operating at different frequency bands separately. The designed antennas are isolated and integrated on a single substrate. The first antenna is designed to operate at 1920-2170 MHz covering the UMTS band, whereas the second antenna is proposed for the lower band 5G systems and WiMAX operating within the frequency range of 3.4-4.2 GHz. Furthermore, another antenna is designed to cover the higher band 5G system and the IEEE 802.11a WLAN within the frequency range of 5.1-5.85 GHz. Finally, a 28 GHz bowtie-based MIMO antenna array is designed and simulated for the mmWave future 5G mobile networks. The proposed antennas were designed and simulated by using CST microwave studio. The results showed that all of the proposed antennas exhibited excellent reflection characteristics below -20 dB at the resonant frequency and achieved high radiation efficiency reached 99% in some cases with a peak gain ranging between 4-6 dBi. The proposed antenna system helps smartphones to perform multitasks and achieve a better-quality operation especially with the enormous growth of IoT techniques.

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<input type="checkbox"/>	303	High Gain of Rectangular Microstrip Patch Array in Wireless Microphones Applications	Alsawaf, H.A.	2022	Lecture Notes in Networks and Systems 430, pp. 503-517	1
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Currently, the microstrip antenna is one of the fastest-growing antennas in the modern telecommunications market. Several studies have been conducted in the recent past to increase the efficiency and performance of patch antennas. For wireless communication applications, in particular, this study presents many designs of rectangular patch array antennas using microstrip patches. In this work, Advanced Design System (ADS) 2020 is used to design and simulate  $2 \times 4$ ,  $4 \times 1$ ,  $2 \times 1$  and single element. It also compares the performance of rectangular antennas in terms of gain and direction as well as radiated power and loss. The increase in gain and direction is observed when the antenna elements are increased, so the performance of the antenna  $2 \times 4$  is better. These antennas are appropriate for some digital wireless microphones since they have a resonance frequency of 2.4 GHz.

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<input type="checkbox"/>	304	Effect of hypericum perforatum tea on renal histology and function <i>Open Access</i>	Mustafa, A.A., Salim, M.J., Ahmad, K.N., Ahmed, M.F., Hadi, A.M.	2022	Journal of Renal Injury Prevention 11,31942	0
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Introduction: Hypericum perforatum consists of several biologically active compounds that may affect cell physiology. Objectives: This study attempted to estimate the effect and safety of a tea that was prepared from H. perforatum on renal histology and function. Materials and Methods: A double-blind controlled experimental trial was conducted on 25 male rats. These animals were divided into four groups. Three of them were labeled as the study groups, and each consisted of seven animals. The fourth group was labeled as the control group consisting of four animals that lived in the same environment and consumed the same food as the other groups. The animals in each study group consumed a prepared tea with a different concentration for each group. The herbal tea of H. perforatum was made as recommended by the local traditional preparation method. Doses of 3, 6, and 9 cc/kg/d were calculated and selected according to the recommendation. Each of these doses was given to each group of the experiment for four weeks mixed with water. Results: A slight increase in blood urea and serum creatinine and a decrease in serum albumin levels were noticed in the experimental groups compared to the control group. In addition, the weight of the kidneys in the study groups was more than the control group. There were microscopical changes in the renal histology that was noticed in the higher doses of H. perforatum tea. Conclusion: Higher doses of H. perforatum tea can induce damage to the renal tissue.

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<input type="checkbox"/>	305	High Isolation Compact Meandered-Line PIFA Antenna for LTE 5G Handset Applications	Naser, A.A., Sayidmarie, K.H., Aziz, J.S.	2022	PoliTO Springer Series pp. 153-191	0
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5G technologies are attracting increased interests as they offer a wide range of promising capabilities. This chapter deals with the antennas suitable for 5G technologies that operate on the low-frequency band of 700 MHz (band 44). Such low-frequency band poses many challenges to antenna designers since this band needs a relatively large antenna size compared to portable communication devices. Therefore, antenna miniaturization is highly required. Modern 5G communication technologies depend mainly on the principle of Multiple Input Multiple Output (MIMO) configurations, where with the limited space in mobile handsets, there is the problem of antenna isolation. Thus, this chapter is also concerned with studying the techniques of isolating the adjacent antennas, and how they can be properly placed in the mobile handset. A proposed MIMO antenna pair is investigated along with the various steps to reduce the coupling between them. Simulation results are presented as well as verifications by measurements on the fabricated prototype.

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<input type="checkbox"/>	306	DEEP LEARNING-BASED IRAQI BANKNOTES CLASSIFICATION SYSTEM FOR BLIND PEOPLE <i>Open Access</i>	Awad, S.R., Sharef, B.T., Saiih, A.M., Malallah, F.L.	2022	Eastern-European Journal of Enterprise Technologies 1(2-115), pp. 31-38	5
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Modern systems have been focusing on improving the quality of life for people. Hence, new technologies and systems are currently utilized extensively in different sectors of our societies, such as education and medicine. One of the medical applications is using computer vision technology to help blind people in their daily endeavors and reduce their frequent dependence on their close people and also create a state of independence for visually impaired people in conducting daily financial operations. Motivated by this fact, the work concentrates on assisting the visually impaired to distinguish among Iraqi banknotes. In essence, we employ computer vision in conjunction with Deep Learning algorithms to build a multiclass classification model for classifying the banknotes. This system will produce specific vocal commands that are equivalent to the categorized banknote image, and then inform the visually impaired people of the denomination of each banknote. To classify the Iraqi banknotes, it is important to know that they have two sides: the Arabic side and the English side, which is considered one of the important issues for human-computer interaction (HCI) in constructing the classification model. In this paper, we use a database, which comprises 3,961 image samples of the seven Iraqi paper currency categories. Furthermore, a nineteen layers Convolutional Neural Network (CNN) is trained using this database in order to distinguish among the denominations of the banknotes. Finally, the developed system has exhibited an accuracy of 98.6 %, which proves the feasibility of the proposed model

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| <input type="checkbox"/> | 307 | Aircraft Pitch Angle Control Using Pole Placement Approach Based on GA and ABC Optimization Techniques   [Kontrola kąta pochylecia statku powietrznego przy użyciu podejścia polegającego na umieszczeniu słupa w oparciu o techniki optymalizacji GA i ABC] | Abdulla, A.I.,<br>Almaged, M.,<br>Khather, S.I. | 2022 | Przegląd Elektrotechniczny<br>98(3), pp. 79-83 | 1 |
|--------------------------|-----|--|---|------|--|---|

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The main objective of the present work is designing a pole placement controller for pitch angle control of an aircraft system based on several bio-inspired optimization methods. Initially, a mathematical model of an aircraft pitch system has been derived and formed in state space representation. Then, pole placement approach is designed with the aid of different optimization techniques, including Genetic Algorithms (GA) and Artificial Bee Colony (ABC), to find an optimal value for the feedback gain matrix. The goal is to choose an optimal target values for the closed loop poles of the system by state feedback method and place them at every targeted location anywhere in the left-half of the complex plane ensuring that the closed-loop poles are stable and controllable. This work also compares the performance of GA with that of ABC algorithm based on different time response characteristics. The efficiency of the control systems responses has been analyzed for the sake of deciding which optimization approach will produce better results concerning the controlled pitch angle. Based on the obtained simulation results, it has been noted that ABC based pole placement controller exhibited more efficient results and overweigh the performance of pole placement controllers based on GA.

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<input type="checkbox"/>	308	Multispectral Image Classification Based on the Bat Algorithm <i>Open Access</i>	Khaleel, A.A., Al-Khalidy, J.H.	2022	International Journal of Electrical and Computer Engineering Systems 13(2), pp. 119-126	2
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There are many traditional classification algorithms used to classify multispectral images, especially those used in remote sensing. But the challenges of using these algorithms for multispectral image classification are that they are slow to implement and have poor classification accuracy. With the development of technologies that mimic nature, many researchers have resorted to using intelligent algorithms instead of traditional algorithms because of their great importance, especially when dealing with large amounts of data. The bat algorithm (BA) is one of the most important of these algorithms. This study aims to verify the possibility of using the BA to classify the multispectral images captured by the Landsat-5 TM satellite image of the study area. The study area represents the Mosul area located in the Nineveh Governorate in northwestern Iraq. The purpose is not only to study the ability of the BA to classify multispectral images but also to obtain a land cover map of this region. The BA showed efficiency in the classification results compared to Maximum Likelihood (ML), where the overall accuracy of classification when using the BA reached (82.136%), while ML reached (79.64%).

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<input type="checkbox"/>	309	An Experimental Study of F-OFDM Spectrum Efficiency for 5G Applications	Ali, D.M., Yahya, Z.Z.	2022	International Journal of Microwave and Optical Technology 17(1), pp. 1-9	2
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The heterogeneous services and the demands for higher data rates, in addition to the need to reduce interference and increase system spectrum efficiency (SE), a new adaptable waveform has been suggested for the physical layer of the Fifth Generation (5G) system. The Filtered-Orthogonal Frequency Division Multiplexing (F-OFDM) waveform is proposed to satisfy the requirements of the new generation, allowing for asynchronous transmissions between the users and increasing system SE. F-OFDM splits the assigned band into smaller subbands with different configurations based on the service requirements. Each subband is filtered separately, and different types of specifications are accommodated in the filters utilized. Two scenarios were adopted in the design of F-OFDM, equal and unequal subband sizes using LabVIEW NXG Software and Matlab simulator. The simulation results show that F-OFDM with various designed window-sinc filters achieves lower Out-Of-Band Emission (OOBE) than conventional OFDM. The subbands waveform has a significant effect on the SE (5%-6%) higher compared to the conventional OFDM by decreasing the guard band. Practical implementation of the proposed waveform in an indoor environment using the Universal Software Defined Radio Peripheral (USRP) X310 platform for spectrum confinement testing in real time is presented at (2.45 GHz). The obtained output spectrum shows that a minimum guard band between the subbands can be achieved by lowering the OOBE in comparison to OFDM.

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<input type="checkbox"/>	310	A Novel FDCT-SVD Based Watermarking with Radon Transform for Telemedicine Applications <i>Open Access</i>	Mohammed, A.A., Abdullah, M.A.M., Awad, S.R., Alghareb, F.S.	2022	International Journal of Intelligent Engineering and Systems 15(1), pp. 64-74	9
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Digital Watermarking has been widely employed for content authentication by securely embedding patient private information within medical images. In this work, we present a novel watermarking, which employs hybridMultiscale/Multiresolution frequency coefficients selection using the Fast Discrete Curvelet Transform (FDCT) inconjunction with Singular Value Decomposition (SVD). In order to add an extra layer of security, the Radon Transform(RT) is applied on the watermarks before embedding for the sake of robustness and security due to RT properties of capturing image directionality which is essential against various attacks. The proposed method attained promisingresults and has shown that the imperceptibility of watermarked medical images is higher than 55 dB for all medicalimages. In addition, the scheme has shown an improved robustness compared with existing related work

<input type="checkbox"/>	311	Design of multi-band millimeter wave antenna for 5G smartphones <i>Open Access</i>	Shareef, O.A., Sabaawi, A.M.A., Muttair, K.S., Mosleh, M.F., Almashhdany, M.B.	2022	Indonesian Journal of Electrical Engineering and Computer Science 25(1), pp. 382-387	14
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The design of a millimeter wave (mmW) antenna for the 5G mobile applications is presented in this paper. The designed antenna has dimensions of 10x10x0.245 mm<sup>3</sup>. This includes the copper ground plane. The resonance of the proposed mmW antenna lies within the range of 33 GHz and 43 GHz. These frequency bands are covering the 5G proposed band in terms of the signal speed, data transmission, and high spectral efficiencies. Computer simulation technology (CST) software is used to simulate the proposed 5G antenna including the characteristics of S-parameters, gain, and radiation pattern. Simulation results show that the return loss at resonant frequencies goes -22 dB, which satisfies the requirements of 5G mobile technology.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	312 Co-crystals for improving solubility and bioavailability of pharmaceutical products <i>Open Access</i>	Al-Dulaimi, A.F., Al-Kotaji, M., Abachi, F.T.	2022	Egyptian Journal of Chemistry 65(1), pp. 81-89	5

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Poor drug solubility with the consequent low bioavailability represents one of the main obstacles to the introduction of new drugs into the market. Several approaches were tried to improve drugs poor solubility and low bioavailability, one of these feasible approaches is by using co-crystallization technology which depends on co-crystal formation by joining the drug with another active pharmaceutical former which could alter the parent drug physicochemical properties. This review tries to highlight the main points in co-crystallization technology including co-crystals design, methods of preparation, the different ways of characterizations and diverse co-crystal applications in product development. Co-crystal design could be facilitated by different software programs like Cambridge structure database, which may aid in prediction of the cocrystal production. Various techniques were used in preparation of co-crystal including classical methods (dry grinding, wet grinding and solvent evaporation) and green methods (ultrasonic and microwave-assisted techniques). The characterization of co-crystal is a corner stone in this field. The developed co-crystal could be identified by their structure, thermal behavior and morphology. Different aspects for co-crystal applications in improving solubility, stability, taste, bioavailability and formulation performance of solid dosage forms were discussed. Indeed, co-crystal could improve flowability and compressibility of powder and consequently will help in production of tablet dosage form. Moreover, multi-drugs co-crystals have succeeded in reaching the market with great advantages in reducing the required dose to perform the pharmacological action in a synergistic performance with another pharmacological agent.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	313 Optimizing the lateral beamforming step for filtered-delay multiply and sum beamforming to improve active contour segmentation using ultrafast ultrasound imaging <i>Open Access</i>	Moubark, A.M., Alomari, Z., Mohd Zaman, M.H., (...), Nie, L., Freear, S.	2022	Biomedical Signal Processing and Control 71,103267	3

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As an alternative to delay-and-sum beamforming, a novel beamforming technique called filtered-delay multiply and sum (FDMAS) was introduced recently to improve ultrasound B-mode image quality. Although a considerable amount of work has been performed to evaluate FDMAS performance, no study has yet focused on the beamforming step size,  $\Delta x$ , in the lateral direction. Accordingly, the performance of FDMAS was evaluated in this study by fine-tuning  $\Delta x$  to find its optimal value and improve boundary definition when balloon snake active contour (BSAC) segmentation was applied to a B-mode image in ultrafast imaging. To demonstrate the effect of altering  $\Delta x$  in the lateral direction on FDMAS, measurements were performed on point targets, a tissue-mimicking phantom and in vivo carotid artery, by using the ultrasound array research platform II equipped with one 128-element linear array transducer, which was excited by 2-cycle sinusoidal signals. With 9-angle compounding, results showed that the lateral resolution (LR) of the point target was improved by 67.9% and 81.2%, when measured at  $-6$  dB and  $-20$  dB respectively, when  $\Delta x$  was reduced from  $\lambda$  to  $\lambda/5$ . Meanwhile the image contrast ratio (CR) measured on the CIRS phantom was improved by 10.38 dB at the same  $\Delta x$  reduction and the same number of compounding angles. The enhanced FDMAS results with lower side lobes and less clutter noise in the anechoic regions provides a means to improve boundary definition on a B-mode image when BSAC segmentation is applied.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 314	The GOP Inter Prediction of H.264 AV\C <i>Open Access</i>	Nabeel, R., Al-Jammas, M.H.	2022	Journal of King Saud University - Computer and Information Sciences 34(1), pp. 1345-1351	0

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Video coding process is consisting of two parts of (encoding and decoding) the digital video scenes. The digital video is a illustration or representation of many scenes that told different stories. It captured from digital video camera and stored in a memory, so we can send video to another person through the internet. The translation of this type of videos needs a high bandwidth, high speed and huge amount of memory due to a huge amount of data to be translate. In the other side, the person needs to receive the video in a high accuracy, so we need a new way to achieve these options. H.264 advance video coding is a new technical leap to reduce the video size through the translation by compressing the original video and decompress the translated video at the receiver side to gain the same original video. The aim of the project is to achieve all these properties by building the encoder and decoder blocks of H.264 AV/C by using MATLAB.

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<input type="checkbox"/> 315	The role of immune mediators in pathogenesis of hepatitis B virus infection <i>Open Access</i>	Abdul-Qaderkhuder, H.	2021	Biomedicine (India) 41(4), pp. 752-755	0
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Introduction and Aim: Viral hepatitis, is considered a major cause of cirrhosis and liver transplantation, both of which are life-threatening conditions. In comparison to Hepatitis C virus infection, Hepatitis B virus (HBV) infection has a lower rate of chronicity. The purpose of this study is to assess the immunological particles CD2 and CD4, as well as the cytokines IL-10, in HBV-infected patients. Materials and Methods: Between April and June 2021, a case-control study was conducted on 180 female subjects with a mean age of 35 years who visited a private clinic in Mosul city. A (10 ml) sample of blood was collected from each subject by routine venipuncture technique, and the blood sample was centrifuged at 3,000 rpm for 10 minutes to separate the plasma, which was used for further investigations. The ELISA test was used to determine the sizes of cytokines in the serum (R&D Systems). A microplate reader was used to limit absorbance in copies (Beckman Coulter). The last concentration was measured in pg/ml. Results: The findings of this study revealed that (15%) of cases had clinical symptoms of HBV, while (70%) of cases were asymptomatic, and (5%) of cases progressed to chronic liver disease. In compared to healthy control groups, HBV patients had highly significant variations in mean CD 2 and CD 4 expression ( $p < 0.0001$ ). Conclusion: During the acute phase of hepatitis, the immune system successfully fights off the infection; however, differences in immune responses to different viruses may explain the tendency for acute infection to resolve rather than develop to chronic infection. Hepatitis viruses employ a variety of tactics to evade human immunity. To fully comprehend the complicated interplay between immunological mediators and HBV infection, more research is needed.

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| <input type="checkbox"/> | 316 | Chest CT findings and experience in 100 COVID19 patients in Mosul city, Iraq<br><i>Open Access</i> | Ahmed, A.W.,<br>Ahmed, R.N., Naif,<br>M.M., (...),<br>Alchalabi, G.B.,<br>Mohammed, A.G. | 2021 | Biomedicine (India)<br>41(4), pp. 793-798 | 4 |
|--------------------------|-----|--|--|------|---|---|

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Introduction and Aim: Due to lack of PCR kits in our area, as well as the extensive dissemination and peaking of COVID-19 since March 2020, our knowledge as radiologists has become increasingly relevant for recognizing CT patterns in order to diagnose and isolate COVID-19-infected patients. In 100 instances, the investigation began with the most prevalent CT chest abnormalities and the CT severity score index in relation to sex. The goal of this study is to better diagnose COVID-19-related lung injuries, enhance the diagnostic accuracy of chest CT scans, and track disease development in Mosul City. Materials and Methods: From June 2020 to January 2021, one hundred patients were enrolled in this cross-sectional study in Mosul, with 71 males (71%) and 29 females (29%) ranging in age from 15 to 85 years, mean SD (53.2317.80). Non contrast chest CT were done as part of investigation tool on patients were suspected COVID-19 infection. Results: A radiologist gathered data between 4 and 10 days after the onset of symptoms and evaluated it for lesion pattern, location, and severity. The commonest CT changes (ground glass opacity 55.23%, consolidation 17.44%, broncho vascular thickening 9.88%, crazy paving 5.81% and tree in bud 5.23%) were seen, along with less common pattern (bronchiectasis 1.74%, nodules 2.33%, reversed halo sign and pleural effusion 1.17%), and no lymphadenopathy were seen. Multilobe involvement was detected in 52/100 instances (68.92%), while peripheral affection was seen in 52/100 cases (65%). The higher CT severity score 4 and 5 with male gender were found to have a significant link (P value 0.002). Conclusion: CT pulmonary are useful as a physician's helper for management and as an excellent predictor of disease severity and patient outcome. In patients with COVID-19 positive infection, the CT scan severity score is highly linked to laboratory findings, hospital stay, and oxygen demands.

<input type="checkbox"/>	317	Dual-Band Folded Monopole MIMO Antennas with Enhanced Isolation <i>Open Access</i>	Yahya, L.S., Yahya, L.S., Sayidmarie, K.H.	2021	Applied Computational Electromagnetics Society Journal 36(12), pp. 1569-1578	3
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In this paper, a compact dual-band multiple-input multiple-output (MIMO) diversity antenna is proposed. Each of the two MIMO antennas consists of two folded strips working as radiating elements that are fed by a microstrip line. The antennas operate in three WLAN bands: ISM 2.45 GHz, 5.25 GHz, and ISM 5.775 GHz. To improve the isolation at WLAN (2.4-2.48 GHz), two L-shaped slots are etched in the ground plane while a U-shaped slot is cut in the ground plane to enhance isolation at WLAN (5.15-5.35 GHz and 5.725-5.825 GHz). Three slots on the substrate between radiating patches are also employed for an extra reduction in the mutual coupling at 2.45 GHz. The antenna performance was examined by simulation employing CST Microwave Studio Software. The proposed antenna offers minimum isolation of more than 19.5 dB, a low envelope correlation coefficient (ECC) of less than 0.0016, and good radiation efficiency (~80%) through the operating frequency bands. The antenna is compact, thin, and suitable for portable devices.

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<input type="checkbox"/>	318	Improvement of non-linear power amplifier performance using doherty technique	Ismael, A.A., Younis, A.T., Abdo, E.A., Hussein, S.H.	2021	Journal of Engineering Science and Technology 16(6), pp. 4481-4493	2
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This paper presents a new method for improving the performances of the non-linear power amplifier using the Doherty concept. The proposed Doherty topology employs class F as basic building block in both the main and the auxiliary amplifiers of the Doherty power amplifier (DPA). The power is distributed between the main and auxiliary amplifiers according to the conditions of Doherty in the manner of uneven power division while keeping the operating point of the class F according to its basic design. The proposed design provides a good flexibility in proper selection of the transmission line characteristics to achieve the specified design goals. The design performance characteristics of the proposed power amplifier are significantly improved. A two-tone signal test showed a clear improvement in the linearity performance compared with the basic amplifier, where two-tone signal at 2.45 GHz with offset frequency of 20MHz is applied using Advance Design System (ADS) simulator environment. The dynamic range obtained is 11dBm and the output power is increased to 32dBm, thereby increasing the efficiency of the PAE in back off power region to 36 %.

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<input type="checkbox"/>	319	Design and simulation of smart wireless devices using scma technology	Yonis, A.Z.	2021	Journal of Engineering Science and Technology 16(6), pp. 4404-4413	2
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Recently, due to the increasing demand for wireless applications, many conditions and restrictions on their use have been put in place, including the use of available and limited radio spectrum. At the same time, the demands of massive mobile connectivity of various devices and various applications set requirements for mobile technology (5G) for the next generations. Therefore, there is a need for much higher network capacity, higher ranges of mobility, much higher performance, and much lower latency in 5G. One of 5G's possible new technology is the use of multiple access methods to enhance performance. Therefore, using a new multiple access technique called Sparse Code Multiple Access (SCMA) instead of OFDMA (4G). In addition, SCMA is a new non-orthogonal frequency domain multiple access techniques introduced which can improve the wireless radio access spectral efficiency with acceptable BER values at high loading system.

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|--------------------------|---|---|---|---|
| <input type="checkbox"/> | 320 Automated diagnosis of childhood pneumonia in chest radiographs using modified densely residual bottleneck-layer features<br><i>Open Access</i> | Alkassar, S.,<br>Abdullah, M.A.M.,<br>Jebur, B.A., (...),<br>Wei, B., Woo, W.L. | 2021 Applied Sciences (Switzerland)<br>11(23),11461 | 2 |
|--------------------------|---|---|---|---|

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Pneumonia is a severe infection that affects the lungs due to viral or bacterial infections such as the novel COVID-19 virus resulting in mild to critical health conditions. One way to diagnose pneumonia is to screen prospective patient's lungs using either a Computed Tomography (CT) scan or chest X-ray. To help radiologists in processing a large amount of data especially during pandemics, and to overcome some limitations in deep learning approaches, this paper introduces a new approach that utilizes a few light-weighted densely connected bottleneck residual block features to extract rich spatial information. Then, shrinking data batches into a single vector using four efficient methods. Next, an adaptive weight setup is proposed utilizing Adaboost ensemble learning which adaptively sets weight for each classifier depending on the scores generated to achieve the highest true positive rates while maintaining low negative rates. The proposed method is evaluated using the Kaggle chest X-ray public dataset and attained an accuracy of 99.6% showing superiority to other deep networks-based pneumonia diagnosis methods.

<input type="checkbox"/>	321	Design of new structure of multilevel inverter based on modified absolute sinusoidal pwm technique <i>Open Access</i>	Saleh, A.A., Antar, R.K., Al-Badrani, H.	2021	International Journal of Power Electronics and Drive Systems 12(4), pp. 2314-2321	7
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The advantage of multilevel inverters is to produce high output voltage values with distortion as minimum as possible. To reduce total harmonic distortion (THD) and get an output voltage with different step levels using less power electronics switching devices, 15-level inverter is designed in this paper. Single-phase 11-switches with zero-level (ZL) and none-zero-level (NZL) inverter based on modified absolute sinusoidal pulse width modulation (MASPWM) technique is designed, modelled and built by MATLAB/Simulink. Simulation results explained that, multilevel inverter with NZL gives distortion percent less than that with ZL voltage. The THD of the inverter output voltage and current of ZL are 4% and 1%, while with NZL is 3.6% and 0.84%, respectively. These results explain the effectiveness of the suggested power circuit and MASPWM controller to get the required voltage with low THD.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 322	Safety of COVID-19 vaccines <i>Open Access</i>	Al Khames Aga, Q.A., Alkhaffaf, W.H., Hatem, T.H., (...), Agha, M.Y.R., Traqchi, M.	2021	Journal of Medical Virology 93(12), pp. 6588-6594	107

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This study is aimed to identify the adverse effects associated with three types of coronavirus disease 2019 vaccines. Approximately 1736 individuals agreed to participate in this study. The participants involved in the study were individuals who had received the first dose or full course (two doses) of the vaccine at least 30 days before the survey. A direct and interactive web-based system interview with a paper and electronic version of the questionnaire was used for all participants. A total of 1736 randomized individuals were identified. The reactogenicity of the vaccines including pain, redness, urticaria, and swelling at the site of the injection was reported in 34.56% of the participants. Local site reaction was reported in more individuals who had Pfizer and AstraZeneca vaccines than those who received the Sinopharm vaccine. The systemic events were more common with AstraZeneca and Pfizer vaccines, symptoms reported were fatigue, body pain, headache, muscle pain, fever, and gastrointestinal side effects. There were no correlations between age or gender, and the duration of the adverse effects for the three vaccines. Swelling and severe allergic reaction of the eyelids, severe hypotension, generalized body aches, shortness of breath, weakness and numbness on the injected arm, acute hyperglycemia, severe chest pain, and fever more than 39°C were among the unusual signs and symptoms reported by the participants. Pfizer, AstraZeneca, and Sinopharm vaccines were found to be safe and Sinopharm vaccine showed a lower prevalence of adverse effects compared with the other vaccines. The duration and severity of adverse effects were not affected by age or gender. Unusual side effects should be closely monitored to establish determine they are linked to the immunization.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	323 PROTECTIVE EFFECT OF MELILOTUS INDICUS L AGAINST HEPATIC INJURY STIMULATED BY CARBON TETRACHLORIDE IN MALE RABBITS	Al-Bofkane, K.M.K., Al-Khayat, R.Z., Al-Bofkane, N.M.K., Al-Bajari, S.A.	2021	Biochemical and Cellular Archives 21(2), pp. 4179-4183	0

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Melilotus indicus L. is an attractive plant for its medical applications, which is found in tropical regions. The current study tends to assess the potential of Melilotus plant for reducing the toxicity of CCl<sub>4</sub> compound. Thirty male rabbits were placed into five groups, i.e., control group, group fed with CCl<sub>4</sub> and the remain of groups were fed with Melilotus compounds (alkaloids, flavonoid and glycoside) to detect its effect on liver efficiency. Lipid peroxidation revealed increasing levels of malondialdehyde in the CCl<sub>4</sub> group in comparison to the control group, however, Melilotus compounds decreased the level of CCl<sub>4</sub>, which in turn reduced the oxidative destruction. Catalase, glutathione and glutathione peroxidase levels recorded high levels in the groups fed with Melilotus compounds in comparison with those fed only with CCl<sub>4</sub>. Superoxide dismutase levels were about the same in all studied groups. There was a significant difference ( $P > 0.05$ ) in CAT and MDA values across both groups, however, no significant difference ( $P < 0.05$ ) was observed in other parameters such as GSH, GPx and SOD. CCl<sub>4</sub> increased the levels of alanine transaminase, aspartate transaminase, alkaline phosphatase and gamma glutamyltransferase, while Melilotus compounds reduced the toxic effect of CCl<sub>4</sub>. In contrast to the CCl<sub>4</sub> group and the CCl<sub>4</sub> groups fed with Melilotus plant compounds, there was a significant difference ( $P > 0.05$ ) in albumin, total protein, globulin values and A/G ratio in the control group.

<input type="checkbox"/>	324 Design of optimized pid controller based on abc algorithm for buck converters with uncertainties	Mohammed, I.K.	2021	Journal of Engineering Science and Technology 16(5), pp. 4040-4059	3
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In this study, a Proportional Integral Derivative (PID) controller is employed in feedback control of buck power converter system. The plant of the converter is mathematically modelled and then a lead compensator followed by an Integrator (I) is designed to achieve an output voltage regulation for buck converter. In this work, the PID controller is developed by using an Artificial Bee Colony (ABC) optimization algorithm, which is employed to obtain best values for controller gain parameters. MATLAB/Simulink environment is used to simulate the regulation behavior of the presented buck converter. The tracking performance of the optimized ABC-PID controller for the desired input trajectories is analysed based on standard control criteria, which includes rising time, settling time, overshoot and steady-state error parameters. Voltage regulation ability of the converter based on the optimized ABC-PID control is verified under three working conditions: variation in source voltage, reference voltage and load resistance. The closed-loop Buck converter with working perturbations is implemented using Simscape Simulink library without needing to derive a complex mathematical model. Finally, simulation results reveal that the proposed PID controller based on ABC tuning approach can be adopted to effectively adjust the output voltage of the Buck converter with uncertainties.

- | Document title  | Authors                      | Year | Source   | Cited by |
|---|------------------------------|------|--|----------|
| <input type="checkbox"/> 325 Theoretical, voltammetric and thermodynamic study for cadmium(II)tyrosine complex at 293-313 K<br><i>Open Access</i> | Abed, A.N.,<br>Ibrahim, A.A. | 2021 | Egyptian Journal of Chemistry<br>64(10), pp. 5555-5559 | 2        |

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The electrochemical properties of the complexation was applied to evaluate different thermodynamic parameters ( $\Delta G$ ,  $\Delta H$  and  $\Delta S$ ) for the cadmium (II)-tyrosine compound using voltammetric technique. The measurements have been investigated by square wave voltammetry using three electrode system consists of solid (platinum as working and auxiliary electrode) and Ag/AgCl immersed in saturated KCl as a reference electrode using to phosphate buffer solution (pH=7) at the range of temperatures (293-313K). Cadmium has a reduction peak potential at (-0.760 V) which is decrease gradually with an increasing of tyrosine concentrations added. Hartree-Fock calculations at basis set (STO-3G) were applied to evaluate the physic-chemical properties like bond length, bond angle, torsion and the thermodynamic parameters.

<input type="checkbox"/>	326 Collaborative Transmitters Management for Multi-user Indoor VLC Systems	Younus, S.H.	2021	Transactions on Emerging Telecommunications Technologies 32(10),e4319	5
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The main encounters face visible light communication (VLC) systems to provide high data rates for multiuser scenario are intersymbol interference (ISI) and cochannel interference (CCI). This work proposes delay adaptation technique (DAT) in conjunction with power adaptation technique (PAT) to improve the performance of the multiuser indoor VLC systems. The DAT is used to reduce the ISI while the PAT is utilized to reduce the CCI. To apply the DAT and PAT, each access point (AP) requires to share its information with the controller, which is responsible to manage the connection between user equipment (UEs) and APs. Therefore, each AP is given a control signal (an unmodulated unique tone signal). These control signals are utilized to set-up the connection between APs and UEs (allocate each UE its best APs, which are APs that offer good connection links). Our proposed system performance is evaluated in a realistic room while considering the effect of diffuse reflections and CCI and using on-off-keying modulation. The results reveal that a remarkable improvement in the VLC system's performance with using DAT and PAD compared with the VLC system without using DAT and PAT.

Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 327 Combined i-Vector and Extreme Learning Machine Approach for Robust Speaker Identification and Evaluation with SITW 2016, NIST 2008, TIMIT Databases <i>Open Access</i>	Al-Kaltakchi, M.T.S., Abdullah, M.A.M., Woo, W.L., Dlay, S.S.	2021	Circuits, Systems, and Signal Processing 40(10), pp. 4903-4923	14

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In this article, a novel combined i-vector and an Extreme Learning Machine (ELM) is proposed for speaker identification. The ELM is chosen because it is fast to train and has a universal approximator property. Four combinations of features based on Mel Frequency Cepstral Coefficient and Power Normalized Cepstral Coefficient are used. Besides, seven fusion methods are exploited. The system is evaluated with three different databases, namely: the SITW 2006, NIST 2008, and the TIMIT database. This work employs the 2016 SITW database for the first time for speaker identification using the integration between the ELM and i-vector approach. From each database, 120 speakers with 1200 speech utterances are used (overall 360 speakers with 3600 speech utterances). Furthermore, comprehensive evaluations are exploited with a wide range of realistic background noise types (Stationary noise AWGN and Non-Stationary Noise types) with the handset effect. The proposed system is compared with the Gaussian Mixture Model-Universal Background Model (GMM-UBM) and other states of the art approaches. The results show that the i-vector method outperforms the GMM-UBM approach and other state-of-the-art methods under specific conditions, and that fusion techniques can be used to improve robustness to noise and handset effects.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 328	Wide programmable range fourth-order, fully-differential Sallen-key MOSFET-C LPF for impedance spectroscopy measurements and self-X sensory electronics in industry 4.0   [Voll differentieller Sallen-Key-MOSFET-C LPF mit großem programmierbarem Bereich in vierter Ordnung für Impedanzspektroskopie-Messungen und Self-X-Sensorelektronik in Industrie 4.0] <i>Open Access</i>	Alraho, S., Zaman, Q., König, A.	2021	Technisches Messen 88(S1), pp. S77-S82	1

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This paper picks up the need for a wide range programmable corner frequency for anti-aliasing and anti-imaging filters in on-chip impedance spectroscopy and sensor signal readout circuitry with self-X properties (self-diagnosing/healing) for industry 4.0 applications. A fourth-order wide tunable range MOSFET-C low pass filter is designed by using XFAB 0.35  $\mu\text{m}$  CMOS technology and Cadence design tools. The proposed circuit is based on fully differential Sallen-Key architecture with Butterworth approximation. It covers a frequency range from 30 Hz up to 7 MHz. Tunability is achieved using a potentially high resistance and linearized configurable MOS resistor to control the filter pole frequency. The configurable elements in the circuit serve as tuning knobs to be controlled by machine learning. The physical design area is 0.39mm<sup>2</sup>

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 329	Adaptive spiking sensor system based on CMOS memristors emulating long and short-term plasticity of biological synapses for industry 4.0 applications   [Adaptives Spiking-Sensorsystem auf Basis von CMOS-Memristoren, das die lang- und kurzfristige Plastizität biologischer Synapsen für Industrie 4.0-Anwendungen emuliert] <i>Open Access</i>	Abd, H., König, A.	2021	Technisches Messen 88(S1), pp. S114-S119	3

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A conventional analog to digital converter (ADC) faces many issues with leading-edge technologies due to noise, manufacturing deviations, signal swings, etc. Thus, we pursue to design an adaptive spiking neural ADC (SN-ADC) with promising features, e.g., robust to noise, low-power, technology scaling issues, and low-voltage operation. Therefore, our approach promises to be technology agnostic, i.e., effectively translatable to aggressive new technologies. It supports machine learning and self-x (self-calibration, self-healing) that needs for industry 4.0 and the internet of things (IoT). In this work, we design an adaptive spike-to-rank coding (ASRC), which is the main part of the spiking neural ADC. The ASRC is based on CMOS memristors emulating short-term plasticity (STP) and long-term plasticity (LTP) biological synapses. The proposed ASRC compensates deviations by adapting the weights of the synapses. Also, ASRC is designed using XFAB 0.35  $\mu\text{m}$  CMOS technology and Cadence design tools. In addition, ASRC is simulated to test its performance in the temperature range ( $-40^{\circ}\text{C}$  to  $85^{\circ}\text{C}$ ).

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	330 Evaluation of the Pharmacologic Treatment of COVID-19 Pandemic in Iraq <i>Open Access</i>	Darweesh, O., Abdulrazzaq, G.M., Al-Zidan, R.N., (...), Aldabbagh, R., AlOmari, N.	2021	Current Pharmacology Reports 7(4), pp. 171-178	16

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The impact of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2, or COVID-19) has been detrimental to human health, economy, and wellbeing. Little information is known on the epidemiology and outcome of the disease in a localized community within Iraq. We carried out an audit of confirmed cases of COVID-19 in the Kirkuk General Hospital. Data from the 20th of June to the 31st of July, 2020, were collected and analyzed. Suspected COVID-19 cases were confirmed by real-time polymerase chain reaction (RT-PCR). Data on clinical symptoms, age, and treatment protocols were analyzed concerning the outcome. Our study included a total of 200 individual confirmed COVID-19 patients. The majority of cases 55% (n = 110) displayed severe symptoms, while 32.5% (65 cases) and 12.5% (25 cases) of patients displayed moderate to mild symptoms, respectively. The rate of death in the referred patients was 5%. Most patients admitted to the hospital for treatment recovered and were discharged from the hospital within 5 to 30 days post-diagnosis. Statistical analysis revealed that patients treated with oseltamivir, hydroxychloroquine, and azithromycin in combination with vitamins C and D have shorter hospital stay compared to patients receiving the same therapeutic protocol in combination with steroids. Moreover, a higher mortality rate (4.5%) was observed in patients treated with oseltamivir, hydroxychloroquine, ceftriaxone, and steroids. This study highlights a significant relationship between age, secondary ailments, and the choice of medications as simple predictors of the outcome of COVID-19.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	331 Efficient transient testing procedure using a novel experience replay particle swarm optimizer for THD-based robust design and optimization of self-X sensory electronics in industry 4.0 <i>Open Access</i>	Zaman, Q., Alraho, S., Konig, A.	2021	Journal of Sensors and Sensor Systems 10(2), pp. 193-206	3

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This paper aims to improve the traditional calibration method for reconfigurable self-X (self-calibration, self-healing, self-optimize, etc.) sensor interface readout circuit for industry 4.0. A cost-effective test stimulus is applied to the device under test, and the transient response of the system is analyzed to correlate the circuit's characteristics parameters. Due to complexity in the search and objective space of the smart sensory electronics, a novel experience replay particle swarm optimization (ERPSO) algorithm is being proposed and proved a better-searching capability than some currently well-known PSO algorithms. The newly proposed ERPSO expanded the selection producer of the classical PSO by introducing an experience replay buffer (ERB) intending to reduce the probability of trapping into the local minima. The ERB reflects the archive of previously visited global best particles, while its selection is based upon an adaptive epsilon greedy method in the velocity updating model. The performance of the proposed ERPSO algorithm is verified by using eight different popular benchmarking functions. Furthermore, an extrinsic evaluation of the ERPSO algorithm is also examined on a reconfigurable wide swing indirect current-feedback instrumentation amplifier (CFIA). For the later test, we proposed an efficient optimization procedure by using total harmonic distortion analyses of CFIA output to reduce the total number of measurements and save considerable optimization time and cost. The proposed optimization methodology is roughly 3 times faster than the classical optimization process. The circuit is implemented by using Cadence design tools and CMOS  $0.35\ \mu\text{m}$  technology from Austria Microsystems (AMS). The efficiency and robustness are the key features of the proposed methodology toward implementing reliable sensory electronic systems for industry 4.0 applications.

Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 332 Impact of the introduction of falls risk assessment toolkit on falls prevention and psychotropic medicines' utilisation in Walsall: An interrupted time series analysis <i>Open Access</i>	Aladul, M.I., Patel, B., Chapman, S.R.	2021	BMJ Open 11(8),e039649	0

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**Objective** To determine the impact of the introduction of a falls risk assessment toolkit (FRAT) in a UK medical centre on the number and cost of non-elective admissions for falls and psychotropic medication utilisation. **Design** Interrupted time series analysis quantifying the number and cost of non-elective admissions for falls and primary care use data for Rushall Medical Centre before and after the implementation of FRAT at July 2017. **Setting** Data on the monthly number and cost of non-elective admissions for falls and number of referrals and assessment to the falls service were provided by Walsall Clinical Commissioning Group. **Primary care prescribing cost and volume data for Rushall Medical Centre** was derived from the Openprescribing.net website for prescriptions dispensed between April 2015 and November 2018. **Primary and secondary outcome measures** The number and cost of non-elective admissions for falls and number of referrals and assessment to the falls service, and the volume of utilisation of psychotropic medicines. **Results** Following the implementation of FRAT at Rushall Medical Centre in July 2017, the number of non-elective admissions for falls decreased at a rate of 0.414 admissions per month ( $p < 0.033$ , 95% CI -0.796 to -0.032). The utilisation of psychotropic medications (alimemazine, citalopram, escitalopram, fluoxetine, mirtazapine, olanzapine and risperidone) decreased. The expenditure on psychotropic medications prescribed/used at Rushall Medical Centre decreased by at least £986 per month ( $p < 0.001$ , 95% CI -2067 to -986). **Conclusions** The implementation of FRAT at Rushall Medical Centre was associated with a reduction in the number of non-elective admissions for falls. Assessment of these patients together with deprescribing of psychotropic medications resulted in a reduction in the number of non-elective admissions for falls and associated costs.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	333 Landmarks exploration algorithm for mobile robot indoor localization using vision sensor	Noaman, M.N., Qasim, M., Ismael, O.Y.	2021	Journal of Engineering Science and Technology 16(4), pp. 3165-3184	4

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In this paper, a novel Landmarks Exploration Algorithm (LEA) is presented for accurate, reliable, and efficient indoor localization. It operates in two stages. The first stage intends to search for artificial Color-Coded Landmarks (CCLs) and store their locations. Extended Kalman Filter (EKF) is exploited in this stage for continually updating the states of the robot, while the camera, equipped with image processing MATLAB code, is used for the detection of landmarks. The second stage attempts to make the robot find a location such that the distance to the detected CCLs is directly measured using a proximity sensor. At this stage, a trilateration method is applied to localize the robot. This paper also proposes an approach to estimate the heading angle of the robot. These two stages contribute to making the robot reach the target as a final step. Furthermore, the LEA performs localization even that one or two CCLs are detected at the same time and also specific order of CCLs is not required. The LEA is implemented, examined, and evaluated inside the CoppeliaSim environment. The simulation results indicate that the LEA provides the robot with the ability to explore CCLs, achieve an accurate localization, and reach the target.

<input type="checkbox"/>	334 An Adaptive Robust Semi-blind Watermarking in Transform Domain Using Canny Edge Detection Technique	Mohammed, A.A., Elbasi, E., Alsaydia, O.M.	2021	2021 44th International Conference on Telecommunications and Signal Processing, TSP 2021 pp. 10-14	8
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Digital watermarking is the multimedia leading security protection as it permanently escorts the digital content. Image copyright protection is becoming more anxious as the new 5G technology emerged. Protecting images with a robust scheme without distorting them is the main trade-off in digital watermarking. In this paper, a watermarking scheme based on discrete cosine transform (DCT) and singular value decomposition (SVD) using canny edge detector technique is proposed. A binary encrypted watermark is reshaped into a vector and inserted into the edge detected vector from the diagonal matrix of the SVD of DCT DC and low-frequency coefficients. Watermark insertion is performed by using an edge-tracing mechanism. The scheme is evaluated using the Peak Signal to Noise Ratio (PSNR) and Normalized Correlation (NC). Attained results are competitive when compared to present works in the field. Results show that the PSNR values vary from 51 dB to 55 dB.

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<input type="checkbox"/>	335	Contactless Core-temperature Monitoring by Infrared Thermal Sensor using Mean Absolute Error Analysis	Malallah, F.L., Shareef, B.T., Saeed, M.G., Yasen, K.N.	2021	Recent Patents on Engineering 15(4),e210421189610	4
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Aims and Objectives: Usually, the increase in temperature of an individual indicates the possibility of being infected with a disease that might be risky to other people, such as coronavirus. Traditional techniques for monitoring body core-temperature require body contact either by oral, rectum, axillary, or tympanic means, which are unfortunately considered intrusive in nature as well as causes of contagion. Therefore, sensing human core-temperature non-intrusively and remotely is the objective of this research. Background: Nowadays, increasing the level of medical sectors is a necessary target for research operations, especially the development of integrated circuits, sensors, and cameras, to make life easier. Methods: The solution is proposed as an embedded system consisting of the Arduino microcontroller, which is trained with a model of Mean Absolute Error (MAE) analysis for predicting Contactless Core-Temperature (CCT), which is the actual body temperature. Results: The Arduino microcontroller was connected to an Infrared-Thermal sensor named MLX90614 as an input signal and was connected to the LCD to display the CCT. To evaluate the proposed system, experiments were conducted on 31 subjects, and contactless temperature from the three face sub-regions was sensed, including forehead, nose, and cheek. Conclusion: Experimental results demonstrated that CCT could be measured remotely from the human face, including three face sub-regions, among which the forehead region should be preferred (a smallest error rate of 2.3%), rather than nose and cheek regions (2.6 % and 3.2% error rate, respectively) for CCT measurement due to the lowest error rates achieved.

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<input type="checkbox"/>	336	Vitamin d deficiency among primary school children in mosul city, northern iraq	Aljammas, E.K., Al-Hafidh, N.M., Zubeer, H.G.I.	2021	Malaysian Journal of Medicine and Health Sciences 17(3), pp. 112-117	0
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Introduction: Although vitamin D deficiency among young children is widespread, deficiency status may vary among regions. Data on the prevalence of vitamin D deficiency among children in Mosul city are lacking. This study aimed to determine the prevalence of vitamin D deficiency among primary school children in Mosul city, North Iraq. Methods: This cross-sectional study was conducted in the government primary schools in Mosul city over the period from February to May 2019. Multistage random sampling technique was applied; four governmental primary schools in Mosul city were selected. A representative sample size of 1072 children, aged between 6 and 12 was enrolled, serum 25OHD was analyzed in all the participants. Results: Vitamin D deficiency (25OHD < 12 ng/ml) was found in 59.7% of children, vitamin D insufficiency (25OHD 12-19 ng/ml) was evident in 33.8% of children, whereas only 6.3 % of children had vitamin D sufficiency (25OHD  $\geq$  20 ng/ml). Boys had significantly higher levels of 25OHD compared to girls, ( $p = 0.0001$ ). There was no significant difference in 25OHD concentrations in relation to parental education. There was a weak reverse significant correlation between body weight and 25OHD concentrations, ( $r = -0.117$ ,  $p = 0.000$ ). Conclusion: Only 6.3 % of primary school children in Mosul city had sufficient vitamin D status. Vitamin D supplementation to primary school children is essential.

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<input type="checkbox"/>	337	Component Spread Minimization for Integrated Active-RC Filter Using Genetic Algorithm Optimization Technique	Abdo, E.A., Younis, A.T.	2021	Proceedings of the 8th International Conference on Computer and Communication Engineering, ICCCE 2021 9467140, pp. 288-293	0
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The most important challenge in the analog integrated filter design is the selecting the proper values of the filter components, and particularly the realization of the big value of the inductor in the applications that required low frequencies such as biomedical (medical) applications. This paper analyze and design integrated active low pass filter of Chebyshev third and fifth order based on the concept of Frequency Dependent Negative Resistance (FDNR) as substitutional to inductors. The design parameters of this filter has been optimized using genetic algorithm by selecting the optimum component speared of the filter. The genetic algorithm (GA) technique using MATLAB is applied to obtain the optimum component spreads and a significant reduction in component spreads are obtained, RSpread  $\sim 86$ , and CSread  $\sim 2$ . Advance Design system simulator program (ADS) is used to verify that the obtained optimum parameters satisfy the specified filter performance. It is also shown that this technique is useful as the required filter order increased that leads to increase the component spread.

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| <input type="checkbox"/> | 338 | Throughput enhancement using Hierarchical Modulation for Underwater Acoustic Communication System<br><i>Open Access</i> | Awny, S.N., Jebur, B.A., Tsimenidis, C.C. | 2021 | Proceedings of Meetings on Acoustics<br>44(1),070027 | 0 |
|--------------------------|-----|---|---|------|--|---|

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Cooperative communication systems can solve the data rate limitations in underwater acoustic channels (UAC) introduced by their half-duplex (HD) nature and bandwidth limitations. In this paper, Hierarchical Modulation (HM) is introduced to both enhance the system throughput and spectral efficiency, as well as to enable various degrees of priority communication links. The proposed system utilizes HM with orthogonal frequency division multiplexing modulation (OFDM) in a two-way relay network (TWRN) using physical layer network coding (PLNC) to exchange information between two nodes operating in HD mode. The performance of the proposed PLNC-TWRN system is analysed via simulations using realistic UAC and numerical results are presented to demonstrate that it can significantly enhance the throughput.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	339 Cell-free Massive MIMO Systems under Jamming Attack	Sabbagh, R., Zhu, H., Wang, J.	2021	2021 IEEE International Conference on Communications Workshops, ICC Workshops 2021 - Proceedings 9473710	2

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This paper evaluates the uplink spectral efficiency (SE) performance of a cell-free massive multiple-input-multiple-output (MIMO) network under the attack of several distributed jammers. The signal-to-interference-plus-noise ratio (SINR) formula for the maximum-ratio-combining (MRC) receiver is initially derived for an arbitrary legitimate user-equipment (UE) by considering the harmful impact of jammers. These jammers target the access points (APs) during both training and data transmissions. Two power control methods are developed to improve the SE performance, a max-min one aiming to ensure uniformly good service for UEs, and a second method aiming to achieve proportional fairness. The proposed system is compared with a single cell co-located massive MIMO system, and with another cell-free massive MIMO system including smart jammers, provided with the legitimate UEs' pilot signals. Simulation results demonstrate the superiority of the proportional fairness power control compared with the max-min fairness and the other scenarios under the threat of jammers. The effect of the number of jammers and their transmission power is further presented and analysed.

<input type="checkbox"/>	340 Improving the performance of practical block length of polar code	Enad, N.S., Al-Jammas, M.H.	2021	Journal of Engineering Science and Technology 16(3), pp. 1870-1882	0
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The recent Forward Error Correction (FEC) code, polar code has been opulent material for researchers because of its uncomplicated encoder and decoder structure and good Bit Error Rate (BER) performance for a sizeable block length. Lately, it is introduced as a candidate for the fifth generation of mobile communication (5G) for control channels. It is known that for control channels used short block lengths, but the performance of polar code in short block lengths is very poor. In this work, we proposed a model to enhance the BER performance in short block lengths by using a list decoder concatenated with a Cyclic Redundancy Check (CRC) code, simulate the model in the Matlab program. When using the Successive Cancellation List (SCL) decoder, the results show that the BER decreases as the list size increases, but at the expense of the increase in the latency. For block length=512, we get a 1dB gain from list size=32 while the latency increases from 1.1 ms for list size=1 to 98 ms for list size=32 and a spreading process adds to improve both the BER performance and latency.

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<input type="checkbox"/>	341	5G scheduling algorithm for capacity improvement using beam division at congested traffic	Al-Zubaidy, M.A., Al Janaby, A.O., Ameen, S.Y.	2021	Journal of Engineering Science and Technology 16(3), pp. 1977-1990	2
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With the increased access of Users Equipment's (UE)s during congested or full load traffic, the existed beams for each base station (BS) will be less than the number of active (UE)s. At this challenging condition, it is essential to create additional beams to serve those (UE)s. In this paper, at congested traffic only, a beam assigned to any UE will be divided to serve the existing UE and the new UE. The division scheme is proposed by dividing any beam into two beams to overcome the beam leakage in the BSs when more (UE)s access the cell. The proposed new scheme will help to serve more than one adjacent or closest UE. The proposed scheme is implemented with the Vienna link-level (LL) and system-level (SL) simulators for the 5G networks. The simulation assessment shows that the new scheme performs, beam division, better than the state provides network improved fairness together with throughput increase by 50% than the state before beam division. Although the UE's throughput will be maintained constant or decreased, the cell capacity and system fairness are improved, and the network will serve additional (UE)s especially (UE)s at congestion and who attend the cell immediately. Also, for (UE)s moving at 75 km/h, which depicts that the throughput decreases as the velocity increased.

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- 342 Similarities and disparities in cancer burden among Arab world females Hussain, L.M., Benbrahim, Z., Kunter, G.M., (...), Alizzi, S., Jazieh, A.-R. 2021 The Gulf journal of oncology 1(36), pp. 36-41 2

Hide abstract  [Locate full text](#)

INTRODUCTION: Cancer is the leading cause of increased morbidity and mortality worldwide. This work aims to study the Arab-world females' cancers (AFCs), the similarities and disparities from epidemiological, economic and development-indices points of view. MATERIALS AND METHODS: Descriptive - Analytical review of the 2018 Global Cancer Observatory concerning AFCs. Data on various cancers were compiled and compared among the countries in the regions and the world females' cancers (WFCs). RESULTS: A total estimate of 227,494 new AFCs; 2.64% of WFCs, with an average crude incidence rate of 111.7\* and an age-standardized rate of 134.5\*, compared to 228\* and 182.6\* of WFCs, respectively. Death cases estimated to be 122,903; 2.95% of WFCs, with an average crude mortality rate of 60.3\* and age-standardized rate of 75.4\*, compared to 110.2\* and 83.1\* of WFCs, respectively. Five-year prevalent cases were 530,735; 2.33% of WFCs, with an average proportion of 260.5\*, compared to 603.5\* of WFCs. Mortality to Incidence Ratio was 0.54 (range 0.36 - 0.80), compared to 0.58, 0.52, 0.49 in the medium human development index, upper-middle-income countries and world countries, respectively. \*/100,000 population. CONCLUSIONS: Despite the demographic and cultural similarities among the Arab communities, there are apparent disparities in AFCs. A systematic approach is required to address these remarkable differences in cancer ranking and rates among Arab countries themselves and when compared to other world groups and nations.

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<input type="checkbox"/>	343	Numerical Modeling of Partial Discharge in a Void Cavity within High-Voltage Cable Insulation	Algwari, Q.T., Saleh, D.N.	2021	IEEE Transactions on Plasma Science 49(5),9416990, pp. 1536-1542	15
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Partial discharge (PD) in the void cavity inside the insulation of the high-voltage (HV) cable is one of the critical problems. This article describes an approach to investigate the spatial distribution of plasma species related to PD dynamics in an ellipsoid void. The plasma dynamics of this type of discharge has been simulated using a self-consistent 2-D model. The ellipsoid void has the longest diameter of 1.5 mm and the shortest diameter of 0.4 mm and it is located at 6.8 mm from the center of the HV. The results show that there are two current pulses during each cycle of the applied voltage. The current pulses were obtained at the ends of the ellipse. The results of the spatial distribution for the charged species showing that both O<sub>2</sub><sup>+</sup> and O<sup>-</sup> are a dominated species. The simulation results revealed, in later PD processes, the N<sub>2</sub><sup>+</sup> and O<sup>-</sup> start to concentrate at the concave surface of the ellipsoid ends of the void.

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<input type="checkbox"/>	344	Novel handover scheme for indoor VLC systems <i>Open Access</i>	Younus, S.H., Al-Hameed, A.A., Hussein, A.T.	2021	IET Communications 15(8), pp. 1053-1059	3
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Managing mobility in visible light communication systems is one of the main encounters that requires to be tackled. In this paper, we propose subcarrier multiplexing tones as control signals for handover in visible light communication systems. These control tone signals are unmodulated signals, and each light unit is given a unique unmodulated control signal. One light unit is used to send the data to the user, which is the best light unit. At a receiver side, band pass filters are used to separate subcarrier multiplexing tones. This enables receiver to connect with all light units via subcarrier multiplexing tones. The carrier to noise ratio of each control tone signal is estimated at the receiver, which leads to make the receiver connects with the light unit that offers the best connection during its mobility.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	345 Evaluation of Lipid Profile and Copper in Type 2 Diabetes mellitus Patients	Al-Omari, A.F., Al-Selevany, B.K., Omar, Z.K., Saeed, A.K.	2021	Biochemical and Cellular Archives 21(1), pp. 1477-1482	3

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Diabetes mellitus (DM) is increasing at an alarming rate worldwide. The onset of diabetic complications is increased by dyslipidemia and chronic hyperglycemia. The aim of the study is to evaluate sera levels of Copper (trace metal element) and the lipid profile in type 2 diabetic patients and to study the association of copper and lipid profile in such patients. The study is a prospective case control study. The first (case group) included 53 diabetic patients with a mean age  $\pm$  SD (49.13  $\pm$  12.88) years. The control group comprise of 55 apparently healthy individuals with a mean age  $\pm$  SD was (39.53  $\pm$  15.90) years. All subjects (cases and control groups) had fasting blood tests, serum copper (Cu), and lipid profile after overnight fasting. The results showed a significant higher level of serum copper ( $P < 0.0001$ ), total cholesterol ( $P < 0.008$ ), low-density lipoprotein cholesterol (LDL) ( $P < 0.0001$ ), triglyceride (TG) ( $P < 0.0001$ ) and very low-density lipoprotein cholesterol (VLDL) ( $P < 0.0001$ ) in diabetic patients compared with the control group, while sera high-density lipoprotein cholesterol (HDL) was decreased in diabetic patients. A significant positive correlation was found between fasting blood sugar with TG and VLDL in diabetic patients, while no such correlation was found in the control group. In conclusion, dyslipidemia is very common in type 2 diabetes mellitus and fasting blood sugar in diabetic patients is directly associated with high serum lipids (TG & VLDL). Serum copper, cholesterol, TG, LDL and VLDL are significantly higher with lower HDL in diabetic patients.

<input type="checkbox"/>	346 Ber-snr performance of noma systems over rayleigh fading channels using real-time fpga	AZEEZ, M.M., MAHMMOD, K.F., AHMED, M.A.	2021	Journal of Engineering Science and Technology 16(2), pp. 927-940	1
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In this paper, non-orthogonal multiple access (NOMA) system for two-users communications is designed and implemented using a real-time field-programmable gate array (FPGA) technique. The generated NOMA signals are assumed to be passed through Rayleigh fading channels along with additive white Gaussian noise (AWGN) at each user's terminal. Furthermore, successive-interference cancellation (SIC) is applied at each terminal to remove the interference caused by other user's signals. This is achieved by detecting the interfered signal, after zero-forcing (ZF) channel equalization, and then subtracts it from the overall NOMA signal. Moreover, the performance analysis of this system is measured by obtaining the bit-error-rate (BER) against different values of signal-tonoise ratio (SNR). Moreover, the BER-SNR results are compared with the results obtained by Monte-Carlo simulation via Matlab showing exactclose matching.

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<input type="checkbox"/>	347	LBTS-Net: A fast and accurate CNN model for brain tumour segmentation <i>Open Access</i>	Abdullah, M.A.M., Alkassar, S., Jebur, B., Chambers, J.	2021	Healthcare Technology Letters 8(2), pp. 31-36	13
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An accurate tumour segmentation in brain images is a complicated task due to the complex structure and irregular shape of the tumour. In this letter, our contribution is twofold: (1) a lightweight brain tumour segmentation network (LBTS-Net) is proposed for a fast yet accurate brain tumour segmentation; (2) transfer learning is integrated within the LBTS-Net to fine-tune the network and achieve a robust tumour segmentation. To the best of knowledge, this work is amongst the first in the literature which proposes a lightweight and tailored convolution neural network for brain tumour segmentation. The proposed model is based on the VGG architecture in which the number of convolution filters is cut to half in the first layer and the depth-wise convolution is employed to lighten the VGG-16 and VGG-19 networks. Also, the original pixel-labels in the LBTS-Net are replaced by the new tumour labels in order to form the classification layer. Experimental results on the BRATS2015 database and comparisons with the state-of-the-art methods confirmed the robustness of the proposed method achieving a global accuracy and a Dice score of 98.11% and 91%, respectively, while being much more computationally efficient due to containing almost half the number of parameters as in the standard VGG network.

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<input type="checkbox"/>	348	Simulation of IoT Web-based Standard Smart Building Using Packet Tracer	Al Sultan, O.K.T., Suleiman, A.R.	2021	Proceedings of the 7th International Engineering Conference "Research and Innovation Amid Global Pandemic", IEC 2021 9476125, pp. 48-53	3
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Smart building is the building block of a smart city. This work proposes an IoT based smart building for a scientific department providing many services such as lighting, HVAC, security, water management, Fire/gas alarms and suppression, and smart park which all can be remotely controlled via the Internet by using either the IoT server webpage or the static IP address of the server through smartphones inside and outside the building, PC or laptop. Programming work is achieved for configuring the sensors, gateway, and servers' devices with Java. Python, or Blockly. Standardizations are considered in the work by employing IoT standard technologies and protocols for networking. The paper includes choosing the building of computer and Information department\ College of electronics engineering\ Ninevah University as a prototype for our IoT smart building simulation using Cisco packet tracer v7.3 which provides many components and devices that simulate the real network.

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<input type="checkbox"/>	349	Study the RCS Effect on Mono Static Radar System Performance	Kanaan, A.E., Ahmed Jaf, S.F.	2021	Proceedings of the 7th International Engineering Conference "Research and Innovation Amid Global Pandemic", IEC 2021 9476112, pp. 123-127	0
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The investigators have researched all the major radar types over the past decades and so far, have selected the bistatic and monostatic radar output along with the dynamic range of the radar system. We focus on specific differences in the relationship between the budget noise, transmission and reception (TR), the ratio of signal to noise (SNR) is last described detailed when limitation is addressed, then the potential improvement is deduced. The key differences are the radiological differences between bistatic and monostatic radar systems. Over the past decades, the researchers have studied the two main radar types, and the bistatic and monostatic radar performance and the dynamic range of the radar system have been chosen between them so far. we focus on the fundamental differences he fundamental differences between the bistatic and monostatic radar system are the relationship between budget noise, transmitting and receiving (TR) pair loss, the signal to noise ratio (SNR) is last defined in detail where limitation is discussed, then the possible improvement is deduced.

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|--------------------------|-----|---|---|------|---|---|
| <input type="checkbox"/> | 350 | Equilibrium optimizer-based robust sliding mode control of magnetic levitation system<br><i>Open Access</i> | Ismael, O.Y.,<br>Qasim, M.,<br>Noaman, M.N. | 2021 | Journal Europeen des Systemes Automatises<br>54(1), pp. 131-138 | 4 |
|--------------------------|-----|---|---|------|---|---|

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Magnetic Levitation System (MLS) objective is to levitate objects to the desired height without any contact. MLS is highly nonlinear and inherently unstable. Such a system imposes a challenge when designing robust and high-performance controllers. This paper presents the design of a Sliding Mode (SM) controller with an Integral term called SM-I controller to achieve the desired levitation against nonlinearities and uncertainties of the system. The controller parameters are tuned using the Equilibrium Optimizer (EO) algorithm. The Effectiveness of the proposed controller is validated by simulation results. Simulations are performed for servo tracking with and without perturbations in the MLS parameters. The proposed controller is compared with the conventional SM, LQR, and PID controllers to show its superiority. The results prove that the SM-I is more efficient than the other controllers.

Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 351 National approaches to managing cancer care: Responses of countries in the MENA region to the COVID-19 pandemic <i>Open Access</i>	Benbrahim, Z., Mula-Hussain, L., Al-Shamsi, H.O., (...), Saleh, A., Jazieh, A.	2021	ecancermedalscience 15, pp. 1-10	4

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Background: The coronavirus disease 2019 (COVID-19) pandemic presents serious challenges to cancer care because of the associated risks from the infection itself and the disruption of care delivery. Therefore, many professional societies have published recommendations to help manage patients with cancer during the current pandemic. The objective of our study is to assess the national responses of Middle East North Africa (MENA) countries in terms of publishing relevant guidelines and analyse various components of these guidelines. Methods: A survey based on the preliminary review of the literature regarding cancer care adaptations has been developed and then completed by a group of oncologists from the following Arab countries affected by the pandemic: Algeria, Egypt, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Saudi Arabia, Syria, Tunisia, United Arab Emirates and Yemen. The survey inquired about COVID-19 cases, national recommendations regarding general measures of COVID-19 prevention and patient care in oncology as well as their implementation about cancer care adaptations during the pandemic. Results: Analysis of the COVID-19 pandemic-related guidelines revealed at least 30 specific recommendations that we categorised into seven essential components. All included countries had national guidelines except one country. Estimated full compliances with all specific category recommendations ranged from 30% to 69% and partial compliance ranged from 23% to 61%. Conclusion: There is a very good response and preparedness in the Arab Middle East and North Africa region surveyed. However, there are inconsistencies in the various components of the guidelines across the region, which reflects the evolving status of the pandemic in each country as well as the lack of clear evidence-based guidelines for many of the issues in question. There is a need for a clear framework on essential components that should be included in these guidelines to assure providing the best guidance to the oncology community.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	352 Deep-intrusion detection system with enhanced UNSW-NB15 dataset based on deep learning techniques	Aleesa, A.M., Younis, M., Mohammed, A.A., Sahar, N.M.	2021	Journal of Engineering Science and Technology 16(1), pp. 711-727	43

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Growth in the number of devices and data has raised serious security concerns, that have increased the importance of the development of advanced intrusion detection systems (IDS). Deep learning can handle big data and in various fields has shown a great performance. Consequently, security specialists are aiming to adopt deep learning in an intrusion detection system. Numerous studies have been done on this topic which have led to many different approaches. Most of these approaches use predefined features extracted by an expert in order to classify network traffic. In addition, UNSW-NB15 dataset was developed in different separated files and labelled based on binary classification, in this research, we aim to merge the whole dataset to be in one file so it can test models once, instead of test models separately for each file. then used attacks families in the dataset as new label so that it will develop multi-classification labelled dataset. We investigated the performance of deep learning with the enhanced dataset, within two classification categories (Binary and Multi-Class). We compared our proposed deep learning model results with related works. We have used accuracy and loss to evaluate the efficiency of deep learning and machine learning models in the enhanced dataset. Our proposed Deep learning models Performed yielded accuracy of 99.59% in multi-class classification and 99.26% in binary classification.

<input type="checkbox"/>	353 Adaptive cruise control of a simscape driveline vehicle model using pid controller	Mahmood, A., Almaged, M., Noaman, M.N., Alnema, Y.H.S.	2021	Journal of Engineering Science and Technology 16(1), pp. 681-695	5
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The arising of an autonomous vehicle has proven to reduce accidents effectively. However, such technology requires time and cost to develop, while vehicle system simulation software provides a cost-efficient, easier and safer way to analyse automotive applications. This paper presents a design methodology of Adaptive Cruise Control (ACC) system. Initially, it involves constructing a complete graphical model of the vehicle using MATLAB Simscape library. This approach will eliminate the need for mathematical derivation, model uncertainty and linearization. It will also produce a quite realistic behaviour since it takes into consideration all the key role parameters of the vehicle. Then, two PID controllers are designed to adjust the throttle and brake respectively. The designed algorithm takes into account keeping the actual distance above or equal to the safe distance by modifying the set values of the controllers according to the actual speed and the speed of the vehicle ahead. Several simulations are performed to verify controllers' capability for different driving situations. The simulation results reveal that the two PID controllers are successful in achieving the desired vehicle speed while simultaneously maintaining a safe distance. Furthermore, the results show that the system responded smoothly to the set speed in an acceptable rise and settling times with almost zero overshoot and steady state error.

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|--------------------------|--|--------------------------------|------|--|---|
| <input type="checkbox"/> | 354 Studying the effect of increasing capacity using comp technology in lte-a networks | HAMMODAT, A.N.,<br>AYOOB, S.A. | 2021 | Journal of Engineering<br>Science and Technology<br>16(1), pp. 556-570 | 8 |
|--------------------------|--|--------------------------------|------|--|---|

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Although LTE-A networks support a high-speed data rate, a large increase in capacity leads to a decrease in the level of performance, especially at the edge of the cell. Coordinated Multi-point (CoMP) technology is a fourth generation (4G) technologies that has improved performance at Cell Edge (CE) not only in terms of the throughput but also efficiency and the coverage of the system as a whole. In this paper, a new model of CoMP technology is proposed. The proposed model demonstrates the performance of LTE-A networks at high capacity using 60 users for each sector in downlink transmission. The performance of the user in terms of peak throughput and Spectral Efficiency (SE) is evaluated with the existence and absence of CoMP not only for users at the CE but also for the whole cell as well. This paper also discusses increasing network capacity via varying user numbers up to 60 users for each sector at several Transmission Time Interval (TTIs). The results show the effect of the number of users on the network performance is higher than that of TTI. The comparison between simulation results when using CoMP technology and not using CoMP technology shows that the throughput can be increased by 13.3% in the cell and 11% at the CE besides improving the SE by 8%.

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<input type="checkbox"/>	355	Effect of structural defects and impurities on electrical characteristics of photovoltaic cells: Multiscale modelling	Al-Ani, O.A., Sabaawi, A.M.A., Sadiq, E.H., Mosleh, M.F.	2021	Journal of Engineering Science and Technology 16(1), pp. 415-426	0
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Growing demand for renewable energy is the main reason behind the dramatic developments in solar cells with different features that have been witnessed in recent years. However, the existence of defects and impurities in the material-based solar cell - especially Si - strongly affects the solar cell performance. A high series resistance ( $R_s$ ) resulted from defects significantly reduces the fill factor and might reduce the short-circuit current when its value is too high. In this work, the impact of structural defects and iron impurity on Si solar cell performance is modelled utilizing simple tools based on data obtained by complex software tools. In addition, a real data of commercial solar cells is used in this work for comparison reasons. It is found that the addition of iron with low concentration can be thought as of adding an  $R_s$  to the solar cell equivalent circuit.

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<input type="checkbox"/>	356	The efficiency of Li-Fi (light –Fidelity) security and data transmission compared to Wi-Fi	Raad Saadallah, N., Mehedi Fathi, M., Arwa, R.	2021	Materials Today: Proceedings  Article in Press	5
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Light-Fidelity (Li-Fi) technology relies directly on visible light communication (VLC) which uses light emitting diodes (LED). The transceiver in this technology has a modification to enable the LED to use light to transmit data. Li-Fi technology is one of the best technologies used in transmitting data for several reasons; the most notable of this is that the transmission of data by this system is limited to the region reached by the light. Consequently, it cannot be leaked outside, and this will not allow hackers and spies to access the data. One of the advantages that Li-Fi technology also the high speed of data transfer provides. The technology relies on the light waves, knowing the frequency of light waves is 10,000 times greater than the frequency of radio waves. In this research, also we will explore several methods by which we can better use Li-Fi including directional lighting, energy efficiency, signal blocking by walls, internal security, high data rate capability, and integrated network capability. Most of the environments, whether the urban environment, the educational environment, the medical environment, the environment of interference of electromagnetic waves, and other environments, become more efficient when replacing the traditional and common communication technologies with Li-fi technology.

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<input type="checkbox"/>	357	Comprehensive analysis of IEEE 802.11ah for Wireless Communication Networks	Yonis, A.Z., Dweig, H.A., Tareed, A.K.	2021	2021 11th IEEE Integrated STEM Education Conference, ISEC 2021 pp. 28-31	3
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IEEE 802.11ah is an approved amendment to IEEE 802.11 wireless local area network (WLAN) standard to support growing demand for machine-to-machine (M2M) applications. IEEE 802.11ah is intended for extended range and low power applications in the unlicensed sub 1 GHz band, including machine to machine communication and the internet of things. 802.11ah uses narrower contiguous channel bandwidths than IEEE 802.11n and IEEE 802.11ac to facilitate long range, low power communication at a lower data rate. Valid channel bandwidths are 1, 2, 4, 8, and 16 MHz IEEE 802.11 ah standard was originally targeting high throughput applications. However, being able to have IP connectivity and the fact that Wi-Fi have already spread in every corner of the world, make this standard one of the most suitable technologies for next generation techniques. The paper evaluates the performance of IEEE 802.11ah and some of its features in various scenarios in this research work.

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<input type="checkbox"/>	358	A Laboratory Emulation of a Percentage Differential Protection Relay for a Single Phase Transformer Using PLC	Ismail, S.Y., Hussain, Z.S., Thabet, H.T.H.H., Thabit, T.H.	2021	International Conference on Electrical, Computer, and Energy Technologies, ICECET 2021	4
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The electrical transformers in the electrical network are one of the most important and expensive elements, which explains the presence of a large number of protection devices installed on them, and among these protections is the differential protection, the subject of our paper. This paper attempts to emulate the conventional electro-mechanical differential relay available in the laboratory of our department with an automated system based on the PLC techniques and replacing the current transformers by Hall Effect current type transducers. The authors studied the principles of operation of the conventional differential relay and designed an embedded system to emulate the operation of the old one. This system was tested in the laboratory by implementing it on a single-phase transformer; the results were good especially its response which was faster than that of the conventional one. Better differential protection for transformers, generators and lines may be achieved by applying this system.

Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 359 Effects of metformin and cinnamon on 1,5 anhydroglucitol, adiponectin and ghrelin on newly diagnosed type 2 diabetes mellitus patients	Mohammad, S.H., Fadhil, N.N., Mahmood, M.D.	2021	Jordan Medical Journal 55(4), pp. 225-233	2

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Objective: Cinnamon, is one of the commonly used herbs for type 2 diabetes mellitus in spite of variable evidence. This study aimed to show the effect of cinnamon when combined with metformin on the glycemic marker; serum 1,5 anhydroglucitol, and the metabolic syndrome markers; adiponectin and ghrelin, in newly diagnosed type 2 diabetes mellitus patients. Patients and Methods: This is a randomized controlled trial that has been conducted over 12 weeks. It included 57 males and females who were 32-60-year-old. States that may affect the results were excluded. Group 1 patients (n. 30) were treated for 12 weeks with metformin alone, 500 mg three times daily. Group 2 patients (n. 27) were treated, for 12 weeks as well, with metformin, 500mg three times daily plus crude cinnamon, 3 g per day. A control group of apparently healthy subjects (n. 33) were used for comparing the results. Results: Metformin group showed a significant rise in 1,5 anhydroglucitol level (p 0.028) and an insignificant rise in ghrelin and adiponectin levels. The metformin plus cinnamon group showed a significant rise in 1,5 anhydroglucitol (p 0.017) and ghrelin (p 0.041), and a highly significant rise in adiponecting level (p value 0.009) that approached the control group level. Conclusion: adding, crude cinnamon to metformin produced significant improvement in 1,5anhydroglucitol and ghrelin levels and highly significant improvement in adiponectin level, suggesting that crude cinnamon is a beneficial adjunctive therapy in treating type 2 diabetes mellitus and metabolic syndrome.

<input type="checkbox"/> 360 A Crescent-Shaped Monopole MIMO Antennas with Improved Isolation for Dual-Band WLAN Applications <i>Open Access</i>	Yahya, L.S., Yahya, L.S., Sayidmarie, K.H.	2021	Progress In Electromagnetics Research C 117, pp. 115-127	4
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A multi-input multi-output (MIMO) antenna system is presented for wireless devices operating at WLAN (2.45, 5.25, and 5.775 GHz) bands. Each of the two antennas in the MIMO system consists of a crescent-shaped monopole whose first part covers the 2.45 GHz band while its second part covers the 5.25 GHz and 5.775 GHz bands. The second part of the monopole is a slot etched in the protruded ground plane between the two antennas. A decoupling mechanism in the form of two interlaced ring-shaped slots is used. The proposed MIMO antenna system is designed on an FR4 substrate with overall dimensions of 40 × 47.5 × 1.5 mm and a small edge-to-edge spacing of 7.3 mm between two antennas. According to the measured results, the proposed design covers two frequency bands (2.2–2.83 GHz and 5.03–5.95 GHz) and has a mutual coupling of –20.78 dB at 2.45 GHz and –42.65 dB at 5.55 GHz. The proposed antenna's performance in both simulations and testing indicates that it is a good choice for WLAN applications.

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<input type="checkbox"/>	361	Closed-set speaker identification system based on MFCC and PNCC features combination with different fusion strategies ( Book Chapter)	Al-Kaltakchi, M.T.S., Abdullah, M.A.M., Woo, W.L., Dlay, S.S.	2021	<i>Applied Speech Processing: Algorithms and Case Studies</i> pp. 147-173	4
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In this chapter, we investigate novel fusion strategies for text-independent speaker identification. In this context, we present four main simulations for speaker identification accuracy (SIA) including different fusion strategies such as feature-based early fusion, score-based late fusion, early-late fusion (combination of feature- and score-based), late fusion for concatenated features, and statistically independent normalized scores fusion for all the previous scores. The Gaussian mixture model (GMM) with the universal background model (UBM) is used for voice modeling. For the original clean speech recording, Mel frequency cepstral coefficient (MFCC) features are utilized. power normalized cepstral coefficient (PNCC) features are employed in the noisy environment due to their efficiency with noise. Hence, to produce a robust speaker identification system, the MFCCs and PNCCs are combined. In addition, cepstral mean and variance normalization (CMVN) and feature warping (FW) are used in order to mitigate possible linear channel effects, as they are robust for channel and handset mismatch and additive noise. We used the TIMIT database to evaluate the closed-set speaker identification. Results show the highest SIA (95%) at a mixture size of 512 using the late fusion approach. Moreover, a fusion-based technique for MFCC and PNCC features results in better accuracy than using each feature alone.

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<input type="checkbox"/>	362	A Hybrid Watermarking Scheme Based on Arnold Cat Map Against Lossy JPEG Compression	Mohammed, A.A., Abdullah, M.A.M., Elbasi, E.	2021	14th International Conference on Information Security and Cryptology, ISCTURKEY 2021 - Proceedings pp. 93-98	4
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Watermarking is a data hiding method for multimedia elements such as image, video, audio, and software. Several works have been conducted in the spatial frequency domains for cover images. An essential demand in the watermarking algorithm is to be resistant to common attacks. In this work, the authors investigate the robustness and reliability of the transform domain watermarking against the Lossy JPEG compression, which is widely used in digital imaging applications and hardware. In addition, we propose a transform domain digital watermarking algorithm that resists the JPEG compression in low frequencies. The Discrete Fourier transform (DFT) and the Singular value decomposition (SVD) are selected as the embedding domain where the binary logo watermark is iteratively scrambled using the Arnold Cat Map (ACM) before embedding for robustness. Two main metrics are used for evaluation the scheme; Peak signal to noise ratio (PSNR) and Normalized Correlation (NC). Experimental results show very promising results with a PSNR value above 45 dB while the NC value remains above 0.9 even after high compression with a Quality Factor of only 1%.

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| <input type="checkbox"/> | 363 | Performance improvement of fractional N-PLL synthesizers for digital communication applications<br><i>Open Access</i> | Naktal, N.Z., Yonis, A.Z., Mohammed, K.K. | 2021 | Telkomnika (Telecommunication Computing Electronics and Control)<br>19(6), pp. 2030-2037 | 2 |
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Loop filter with two order was designed to improve the performance of the fractional N-phase locked loop (PLL) circuit (reference spurs noise and switching time), decreasing these two factors give good characteristic to fractional N-PLL circuit, the second order and third order loop filters are widely used in frequency synthesizer because they give good stability tolerance and for their simple architecture. They are designed at bandwidth  $B=125$  KHz and its multipoles, at two values of the phase margin (pm)=  $35^\circ$ ,  $57^\circ$ . MATLAB program was used to find the lock time, the component values for each element in the loop filter, also the filter impedance  $T(s)$ , the bode plot of frequency response for close loop (CL) and open loop gain (OL). It is found by comparing the result of the frequency response for the 2nd order loop filter and 3rd order loop filter, that increasing the order of the filter will reduce the spurs noise that destroy the received signal at receiving side.

<input type="checkbox"/>	364	Design of Multiband Fractal Antenna for Energy Harvesting Applications	Sabaawi, A.M.A., Sultan, Q.H., Salim, M.S.	2021	2021 12th International Renewable Energy Congress, IREC 2021	2
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currently, significant efforts are being paid on the power management strategies for wireless devices. This leads to exploit the electromagnetic waves that are exist in the ambient environment for battery charging. In this paper, the design of a multi band fractal loop antenna for energy harvesting applications is presented. The proposed antenna has compact dimensions and designed to harvest energy from RF base stations of various mobile networks such as GSM, LTE and the future 5G networks. The resonant frequencies for the proposed antenna is within the range of 900 MHz to 5 GHz. CST Studio Suite software is used to simulate the proposed fractal antenna including the characteristics of S-parameters, gain, and radiation pattern. Simulation results showed that the return loss at resonant frequencies goes below -10 dB, which satisfies the requirements of energy harvesting techniques.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	365 An AC/DC switch mode power supply based on half bridge DC/DC converter for low power applications	Al-Badrani, H., Ameen, Y.M.Y., Abdul Kadir, M.N.	2021	2021 12th International Renewable Energy Congress, IREC 2021	1

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This paper deals with the analysis, simulation and implementation of an SMPS based on a two-stage AC-DC converter. The first-stage uses a single-phase uncontrolled bridge rectifier, and the second-stage is based on a DC-DC half-bridge converter. The presented SMPS output-voltage can be controlled in the range of 10-15V to supply a DC-load to supply up to 250W to the load. power rating up to 250W. A detailed mathematical analysis is presented to show converter performance in (CCM). The effect of inserting the flux reset capacitor between the primary of the high frequency converter and the two power transistors center point are taken in to account in this work. The SMPS is modeled in MATLAB Simulink, and the results are cross-checked against the analytical representation as well as the results of a developed microcontroller-based prototype model, resulting in a complete validation.

<input type="checkbox"/>	366 A Comparative Study of Resonant Frequency Calculation Based on Leakage-Inductance and Self-Inductance for CET System	Atraqchi, Z.A., Ameen, Y.M.Y., Younis, A.T.	2021	2021 12th International Renewable Energy Congress, IREC 2021	2
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Recently, the resonance phenomenon in contactless energy transfer (CET) is widely used to deliver power to a load over a relatively large air gap between the transmitter (Tx) and receiver (Rx) coils via magnetic coupling. Since many reactive components in the CET system are contributed to the resonance phenomenon, therefore there are many resonant frequencies. In this paper, a comparative study is made to find the resonant frequency based on leakage-inductance and self-inductance for determining the compensation element values in a series-series (SS) compensated CET system.

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| <input type="checkbox"/> | 367 | A Quantitative study on evidence of varicose veins among different occupational backgrounds in the city of Mosul Iraq<br><i>Open Access</i> | Mahmood, H.J.,<br>Ibrahim, R.H.,<br>Abdulghani, M.F.,<br>Al-Zaidy, Z.F. | 2021 | Malaysian Journal of Public Health Medicine<br>21(3), pp. 36-41 | 0 |
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The present study focuses on evidence of varicose veins (VV) in subjects on different parameters like occupations, gender, and smoking habits etc. in the City of Mosul, Iraq. A quantitative study was performed at Mosul Teaching Hospital between November 2019 and February 2020. Total sample size was 1052 in numbers. Subjects were mainly among different occupations like Nurses, address, Policemen, and teachers. Selected subjects were physically examined on general parameters who agreed to engage in this study. The rate of overall VV prevalence among different occupational backgrounds in the City of Mosul was found to be 200/1052 (19%). It was observed that the percentage of men (49%) and women (51%) and the mean age of the participants was (39.1±3.1). The entire study analyses the effects of various parameters like obesity (BMI), gender, age, smoking habit, and alcohol consumption etc on prevalence of VV. Additionally study also concludes that more occupational standing which has significant contributions in prevalence of VV can be prevented by sitting or walking at frequent intervals whenever is appropriate. So, by improving clinical practices the incidences of vascular diseases may be reduced.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	368 Efficient Gender Classifier for Arabic Speech Using CNN with Dimensional Reshaping	Jasim, A.M., Awad, S.R., Malallah, F.L., Abdul-Jabbar, J.M.	2021	7th International Conference on Electrical, Electronics and Information Engineering: Technological Breakthrough for Greater New Life, ICEEIE 2021	2

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Nowadays, gender detection is an open research in the field of soft biometrics. Human gender detection can be implemented depending on a voice or a speech. In this paper, an improved recognition rate of an individual gender detection is approached. The methodology starts with a proposed pre-processing technique, which is converting 1-dimensional (1D) into 3-dimensional (3D) data voice. Then the whole 3D voice samples are passed to the convolutional neural network for both training and testing (predicting) the class whether it is a male or a female. The number of the convolutional neural network (CNN) layers is 19 distributed into 4 rounds, in which each round contains sub-layers. The performance is extracted by using a database for Arabic speech that contains 6644 voice samples. The average result of the recognition rate is achieved up to 98.91%, which outperforms the state of the art using the same database.

<input type="checkbox"/>	369 Nanoemulgel as a recent drug delivery system <i>Open Access</i>	Azeez, N.R., Alkotaji, M.	2021	Military Medical Science Letters (Vojenske Zdravotnicke Listy) 2021,90	0
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Every year many drug molecules discovered to be effective in treatment of many diseases, however not all of these drugs succeed in reaching the market. One of the main reasons for such failure is the lipophilicity or low water solubility of these chemicals which results in poor bioavailability. Nanoemulsion has the ability to deliver these drugs in an efficient way. Nanoemulsion, which is usually o/w emulsion can incorporate this lipophilic drug into nanolipoidal droplets. However, the difficulty in applying liquid dosage form can be overcome by using nanoemulgel system. Nanoemulgel considered as a suitable way to deliver lipophilic drugs through topical route. This review tries to highlight the importance of nanoemulgel as a drug delivery system. The components of the systems have been explored and the methods of preparations including high energy methods and low energy methods have been discussed. Different methods were used in characterization of such delivery system; all of these methods and techniques were reviewed briefly. Finally, the recent researches about different applications of emulgel in local delivery or systemic delivery has been discussed. To conclude, the nanoemulgel applications in drug delivery is very promising and many products will find their way to the markets soon.

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<input type="checkbox"/>	370	Design and implementation of PSO/ABC tuned PID controller for Buck converters <i>Open Access</i>	Ahmed, M.N., Mohammed, I.K., Younis, A.T.	2021	Periodicals of Engineering and Natural Sciences 9(4), pp. 641-656	2
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In the recent years, Buck converters have been widely involved in a variety of the everyday applications such as smartphones and PCs. Buck converters can provide better and steadier performance when integrating a control system in the design. Therefore, it is interesting to work on this integration and gain the required efficiency in term of the gained voltage. In this paper, PID controller is adopted to control the output voltage of the Buck converter. An optimization is achieved on the performance of the Buck converter using two bio-inspired algorithms namely, Particle Swarm Optimization (PSO) and Artificial Bee Colony (ABC). The voltage controlled Buck converter system is simulated using Matlab environment to validate the proposed PID controller system. In this study, the voltage regulation process of Buck converter is investigated based on many working disturbances such as the change in the supply voltage, reference voltage, and load resistance in order to verify the robustness of the proposed PID controller. Finally, the feedback voltage control system of the Buck converter is implemented experimentally in real-time to validate the simulated PID controller.

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<input type="checkbox"/>	371	Null Steering Implementation by Controlling Side-Elements Positions	Mohammed, J.R., Younus, K.M.	2021	International Journal of Microwave and Optical Technology 16(6), pp. 568-575	2
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In this paper, a simple and low-cost null steering method for linear and planar arrays is presented and experimentally verified. It consists of controlling the positions of one or more edge elements on each side of the array. Unlike the existing electronic null steering methods, where the desired nulls were placed by either modifying the amplitudes/phases of the excitation weights of the array elements or by thinning the array elements, the proposed method uses uniform (i.e., fixed) amplitude excitations and none of the elements are removed (switched off). Thus, it is neither affected by the quantization errors nor gain reduction. Moreover, the proposed null steering method has been applied to both linear and rectangular planar arrays. An array of eight rectangular patches with two optimized side elements is fabricated and its radiation characteristics were measured. Experimental results were found to be in a good agreement with the theoretical ones and show realistic and satisfactory array patterns with accurate null directions at a depth lower than -35 dB with respect to that of the uniformly spaced arrays.

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<input type="checkbox"/>	372	A Circular Monopole Filtenna with Inverted L-shaped Stub for 5G Applications	Al-Arajee, T.H., Sayidmarie, K.H.	2021	International Journal of Microwave and Optical Technology 16(6), pp. 608-617	2
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A filtering antenna for 5G applications is presented, where a circular monopole antenna is employed, and the resonant element is an inverted L-shaped stub attached to the microstrip feed line to eliminate the necessity of additional size for filter inclusion. A comprehensive parametric analysis was performed using CST Microwave Studio Suite to assess the filtenna properties and optimize its parameters. The filtenna is aimed for the 5G 3.4-3.8 GHz, and the bandwidth has been reduced from 4515 MHz for the monopole, to 1539 MHz for the single-stub filtenna, and then to 617 MHz for the double-stub filtenna with a good reflection coefficient of -41.18 dB and -25.45 dB respectively at the center frequency. The L-shaped stub improves the edge of the frequency response while it has no effect on the radiation pattern at the operating frequency. The use of two stubs offered independent improvement of the two edges of the frequency response, by adjusting the length of each stub. In comparison to the other filtenna designs, the proposed filtenna is very compact, measuring only 35 x 44 mm<sup>2</sup>, or 0.42  $\lambda_0$  x 0.53  $\lambda_0$  at the center frequency, and has a gain of 3.5 and 3.15 dBi for the single and double-stub filtenna.

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| <input type="checkbox"/> | 373 | Early results after total correction of tetralogy of fallot (Tof) in Mosul center of cardiology and cardiac surgery   [Resultados iniciales después de la corrección total de la tetralogía de Fallot (TOF) en el Centro de Cardiología y Cardiología de Mosul] | Alfaqe, F.M.M., Al-Yakoob, Z.T.M., Alsultan, A.A. | 2021 | Revista Latinoamericana de Hipertension 15(3), pp. 245-252 | 0 |
|--------------------------|-----|---|---|------|--|---|

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Objectives: Report an early follow-up in patients after TOF repair and special concern to Transatrial approach to find important predictors of adverse results. Methods: An original article (retrospective study) of 39 cases (26 male and 13 female) referred from different hospitals to our department for surgical management from (June 2012 till June 2016) including all cases of pediatric & adult age group that undergoing Total correction of TOF in Mosul Center of Cardiology and Cardiac Surgery (MCCCS). Weight distributions ranged from (14 – 80) kg and the mean body weight was (35.68 kg). Body surface area ranged from 0.47 to 1.92 with a mean of 1.16 and median 1.26. Age ranged from (3.5 - 34) years (median of 12y). Diagnosis of patients done by simple echocardiography study of the heart, cardiac catheterization with other investigations. We include all approaches of repair like Transatrial and Transventricular and patients with small pulmonary arteries need additional pulmonary annuloplasty or arterioplasty enlarge pulmonary arteries. The associated anomalies were 25 patients (46.1%). Results: In this study, there was 3 case death (7.6%), the mean aortic clamp time 74.8 ranged from 33 - 120 mins and while the mean cardiopulmonary bypass time was 130 minutes, ranged from 75 - 170 minutes. The mean perfusion time was 101.1 min ranged from (77-172) mins, time needed for weaning off from the ventilation ranged from 5.45 to 10 hours. In 71.8%(28 cases) inotropic support drugs was required for coming off bypass or during ICU stay, while 28.2 % (11 cases) no inotropes were needed. All patients remained in normal sinus rhythm. In 11 cases (28.2%) developed cardiac arrhythmias, 5 cases temporary supraventricular arrhythmias and 4 cases RBBB occurred postoperatively, and 2 cases have complete heart block, from all 11 patient 7 cases only required temporary pacing, the other 4 cases resolved with medical therapy and no patient developed persistent cardiac arrhythmias. 4 case only developed pericardial effusion that didn't require any intervention and managed conservatively. 2 cases developed Pneumothorax and managed by simple thoracostomy tube. No respiratory failure, one case developed acute renal failure and died later one patient failed to weaned from CBP machine and died later. (The pre-operative RVOT pressure gradient ranged from 48 – 160 mmHg, mean 93.97 mmHg. The gradient was at early post-operative follow up echocardiography 38.7 mmHg then it decreased on late follow-up to mean 25.7 mmHg in TA/TP approach. Conclusion: Surgical management of TOF in Mosul cardiac center is feasible technique by Transatrial approach is associated

□ 374	Design And Simulation Of A High-Power Doubleoutput Isolated Cuk Converter <i>Open Access</i>	Ameen, Y.M.Y., Al-Badrani, H., Kadir, M.N.A.	2021	Eastern-European Journal of Enterprise Technologies 5(5-113), pp. 30-50	1
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Among the transformer-less DC-DC converters, the superiority of the conventional Cuk converter is obvious in its good properties. However, the output power is limited for all transformer-less converter types including the conventional Cuk converter. In order to get more supplied power from this converter, some changes in its design were necessary. One of these modifications is to add a transformer to transfer more power and to separate the output side from the input side. Supply of some applications such as the DC link of modular multilevel inverters, e. g. cascaded H-bridge (CHB) topologies required more than one output. Hence, this paper is concerned with the design, analysis and simulation of an isolated dual-output modified Cuk converter. The proposed converter is designed to deliver a total output power of 2,000 W using only one modulating switch. A complete design and detailed analysis of the high-frequency transformer with the ANSYS Maxwell platform is presented in this paper. The modeling and simulation results of the high-frequency transformer are validated by the experimental implementation results and good agreement was obtained with a small percentage of errors less than 4 %. A set of analytical equations has been derived and presented in this paper to represent a mathematical model of the converter. In addition, the entire converter circuit was simulated and analyzed with MATLAB/Simulink. The simulation results were checked and compared to the findings of the mathematical model, yielding an excellent match with a percentage error of less than 2.15 %. Finally, when the presented converter was tested under various loads, including unbalanced load situations, a reasonable output voltage regulation was achieved, with the two output voltages being nearly identical with a deviation of less than 0.25 % under a severe unbalanced load condition of 150 %

<input type="checkbox"/>	375	Limiting Covid-19 Infection By Automatic Remote Face Mask Monitoring And Detection Using Deep Learning With lot <i>Open Access</i>	Alsaydia, O.M., Saadallah, N.R., Malallah, F.L., AL- Adwany, M.A.S.	2021	Eastern-European Journal of Enterprise Technologies 5(2-113), pp. 29-36	6
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During the current outbreak of the COVID-19 pandemic, controlling and decreasing the possibilities of infections are massively required. One of the most important solutions is to use Artificial Intelligence (AI), which combines both fields of deep learning (DL) and the Internet of Things (IoT). The former one is responsible for detecting any face, which is not wearing a mask. Whereas, the latter is exploited to manage the control for the entire building or a public area such as bus, train station, or airport by connecting a Closed-Circuit Television (CCTV) camera to the room of management. The work is implemented using a Core-i5 CPU workstation attached with a Webcam. Then, MATLAB software is programmed to instruct both Arduino and NodeMCU (Micro-Controller Unit) for remote control as IoT. In terms of deep learning, a 15-layer convolutional neural network is exploited to train 1,376 image samples to generate a reference model to use for comparison. Before deep learning, preprocessing operations for both image enhancement and scaling are applied to each image sample. For the training and testing of the proposed system, the Simulated Masked Face Recognition Dataset (SMFRD) has been exploited. This dataset is published online. Then, the proposed deep learning system has an average accuracy of up to 98.98 %, where 80 % of the dataset was used for training and 20 % of the samples are dedicated to testing the proposed intelligent system. The IoT system is implemented using Arduino and NodeMCU\_TX (for transmitter) and RX (for receiver) for the signal transferring through long distances. Several experiments have been conducted and showed that the results are reasonable and thus the model can be commercially applied

<input type="checkbox"/>	376	Design and simulation of an adaptable pulsating irrigation system using programmable logic controller unit	Ismail, S.Y., Hussain, Z.S., Thabet, H.T.H.H., Amin, M.Mo.Z.M., Thabit, T.H.	2021	Przegląd Elektrotechniczny 97(11), pp. 175-178	3
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Due to the scarcity of water on the globe today, it is considered as a valuable natural resource. This requires intensive and applied research to preserve it, and this, in turn, requires the design of smart irrigation systems that use water according to the actual needs of plants and with the least possible waste. Currently, plants irrigation all over the world consumes most of the freshwater that should be used in other more important areas. The commercial irrigation water controllers that are widely used in the world do not fulfill their intended purpose of saving the amount of irrigation water. The development and lower price of PLC have made it possible to use them as standalone controllers for smart and economical irrigation. In this paper a PLC type (s7-200) was used to control daily pulsed irrigation amounts according to actual transpiration ETo, using the Hargreaves-Samani method. Once ETo is calculated by the PLC, it begins to manage the timing of the irrigation system pulses as per the commands given by its program depending on the calculated values of the ETo.

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<input type="checkbox"/>	377	Clinical evaluation for bronchoscopic management in pediatric patients suspected to have foreign body inhalation	Alfaqe, F.M.M., Al-Abbasi, B.K.	2021	Current Pediatric Research 25(9), pp. 892-897	0
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Background: Tracheobronchial foreign body aspiration in pediatric is a life-threatening condition, the early diagnosis and treatment are crucial to prevent complications. Patients and Methods: 51 patients younger than 14 years, were studied in Al-Khanssa teaching hospital, according to their age, sex, time of presentation, history of foreign body aspiration, clinical, radiological as well as bronchoscopic findings. Results: In 51 patients (27 males, 24 females), mean age 4.3 years, largest portion presented within first 24 hour of FB aspiration (43%), positive history was noted in 84.3%, with PPV of 95.5%, NPV of 85.7%, most common clinical presentations were dyspnea (68.6%) and cough (64.7%), most common finding in clinical examination was rhonchi (47.1%), the consolidation was the most common CXR findings(35.3%), negative CXR noted in 29.4%, most commonly encountered FB is organic materials (54.9%), mainly food, Right Main Bronchus (RMB) is the most common site of FB impaction (35.3%) followed by Left Main Bronchus (LMB) (31.4%), then trachea (9.8%), Rigid Bronchoscopy (RB) was done urgently in most of the cases (78%), additional procedures are needed in limited number of cases and they included esophagoscopy and thoracotomy, no mortality or morbidity were recorded after RB. Conclusion: Positive history of inhalation is most important indicator of TFBA, clinical findings can aware doctor for possibility of TFBA especially in toddlers, however none of clinical findings are specific, the most specific Chest X-Ray finding (CXR) is detection of radiopaque FB, however this is uncommon finding, hence most common aspirated FB are organic radiolucent materials, negative CXR cannot exclude TFBA, especially when history and clinical findings are suggestive, the rigid bronchoscopy, remains the gold standard in the management of TFBA.

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| <input type="checkbox"/> | 378 | Measurement of Inflammation-Related Biomarkers in Different Chronic Kidney Diseases in Humans: Role of Aging and Gender?<br><i>Open Access</i> | Mohammed, A.A.,<br>Abdulla, A.A.,<br>Karam, A.A. | 2021 | IIUM Medical Journal<br>Malaysia<br>20(4), pp. 37-43 | 0 |
|--------------------------|-----|--|--|------|--|---|

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Introduction: Chronic kidney disease (CKD) is a worldwide health problem that can be associated with a considerable degree of inflammation. The inflammation can result from different mechanisms in different kidney diseases including the imbalance of proinflammatory/anti-inflammatory biomarkers levels. This study aimed to determine the level of physiological bioactive inflammation-related biomarkers (gelatinase-associated lipocalin (NGAL), monocyte chemoattractant protein 1 (MCP1), and clusterin (CLU)) in different chronic kidney diseases (CKDs) and to investigate whether gender or aging is critical in these measurements. Materials And Methods: 84 individuals (19 healthy, 29 chronic glomerulonephritis, 26 diabetic nephropathies, 6 benign nephroscleroses, 4 lupus nephritis) were enrolled in this study. The inflammation progression degree in CKD was estimated by measuring the plasma level of NGAL, MCP1, and CLU using ELISA. Serum total protein, urea, and creatinine were measured using an automatic analyzer. Results: The plasma level of urea and creatinine was increased while total protein level was decreased in all the patients compared to control participants. The level of NGAL, MCP1, and CLU was significantly increased in all the kidney diseases compared to controls. In addition, there were no differences in the level of inflammationrelated markers between women and men. Moreover, the levels of inflammatory markers were increased in the kidney diseases regardless of the age difference. Conclusions: This study showed that the physiological bioactive substances NGAL, MCP1, and CLU can be increased in renal pathologies and considered as good indicators of the progression of inflammation in CKDs, with no role of gender and age in their increment plasma levels.

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<input type="checkbox"/>	379	Assessment of umbilical venous catheter insertion depth using Dunn and Shukla method	Shareef, A.A., Mohammed, R.F., Kandla, N.	2021	Current Pediatric Research 25(9), pp. 852-857	0
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**Objectives:** Umbilical venous catheterization is a commonly used intervention in the Neonatal Intensive Care Unit (NICU), and it is important to estimate the optimal depth of catheter insertion in order to minimize complications of catheterization. The aim of this study was to compare Dunn and Shukla's methods for predicting the length of umbilical venous catheter insertion at varying birth weight.

**Materials and Methods:** This is a prospective comparative study conducted on newborns subjected to Umbilical Venous Catheterization (UVC) at the NICU at AL-Khansaamaternity and children's teaching hospital, Mosul, Iraq over 12 months beginning on 1 August 2019. The catheter tip position was evaluated with thoracoabdominal AP radiographs and considered correct if the tip was visible between T9 and T10, under insertion (below T10), and over-insertion (above T9).

**Results:** A total of 111 infants were enrolled during the study period. Fourteen infants were excluded because their UVCs tips were located laterally in the portal venous system and the remaining 97 infants were analyzed, of which 49 were allocated to Dunn's group and 48 to Shukla's group randomly. Dunn's method was more accurate than Shukla's method for determining the optimal insertion length of UVCs (45% vs. 25%,  $P=0.04$ ); especially in infants with birth weight <1500 g (59% vs. 11%,  $P=0.00296$ ). Whereas, a significantly higher rate of highly positioned catheter tips was demonstrated in Shukla's method than in Dunn's method (73% vs. 51%,  $P=0.0264$ ); and especially in infants with birth weight <1500 g (89% vs. 35%,  $P=0.00104$ ). While the analysis did not show any significant difference in the proportions of low positioned catheter tips between the two groups.

**Conclusion:** This study showed that Dunn's method resulted in a higher rate of ideal insertion length of UVCs than Shukla's method. The rate of correctly positioned catheter tip was significantly high in Dunn's method especially in infants with birth weight <1500 g. whereas, the rate of highly positioned catheter tip was significantly high in Shukla's method particularly in infants with birth weight <1500 g.

□	380 MRI findings in migraine headache in different age groups and relation to Aura	Ahmed, R.N., Alkhaffaf, W.H., Naif, M.M., Al Mahdawi, A.M.	2021	Current Pediatric Research 25(9), pp. 881-886	0
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Background: Migraine is a common disorder with well-known association to structural brain changes. In the current study, we aim to identify the relation between structural brain Magnetic Resonance Imaging (MRI) changes and the migraine type as well their relation to the patient's age. Methods: This cross sectional study was conducted in Iraq from July 2020 to January 2021, on 200 patients with migraine headache, of two age groups (100 patients of less than 18 years and 100 patients of 18-55 years). All the participants had MRI of the brain; the patient's information and the MRI records were then studied. Results: Patients under age of 18 years (Group 1), were 43 male (43%), 57 female (57%), age range is 3-18 years old, the mean age is  $10.36 \pm 3.62$  years, 19 patients (19%) were having positive MRI findings and 17 patients (17%) were having Migraine with Aura (MA). On the other hand, the patients of 18 years old or more (Group 2) were 37 male (37%) and 63 (63%) female, their age range is 19-55 years, mean age is  $35 \pm 9.97$  years, of them 32 patients (32%) have positive MRI findings and 21 patients (21%) had MA. The positive MRI findings, in form of White Matter Hyper Intensities (WMHI), were noted in 51 patients of the total 200 patients (25.5%) include 32% in group 2 and 19% in group 1, total number of WMHI were 120, of them 91 (75.8%) supratentorial and 29 (24.2%) infratentorial. The average No. of WMHI found to be significantly higher in group 2, compared to group 1 (1.9 vs. 2.5 per positive case respectively). The presence of positive MRI changes among MA is shown to be significantly high (p value=0.00), compared to the patients who don't have an aura (65.8% vs. 16%), with an odds ratio of 10.0 (at 95% confidence interval), likewise this difference is clearly noted if each age were analyzed separately. Conclusion: Structural brain changes in form of WMHI are common MRI findings in the migraineurs patients, and it seems to be strongly associated with aura.

<input type="checkbox"/>	381	Linear and planar array pattern nulling via compressed sensing <i>Open Access</i>	Mohammed, J.R., Thaher, R.H., Abdulqader, A.J.	2021	Journal of Telecommunications and Information Technology 2021(3), pp. 50-55	6
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An optimization method based on compressed sensing is proposed for uniformly excited linear or planar antenna arrays to perturb excitation of the minimum number of array elements in such a way that the required number of nulls is obtained. First, the sparsity theory is relied upon to formulate the problem and then the convex optimization approach is adopted to find the optimum solution. The optimization process is further developed by using iterative re-weighted  $l_1$ -norm minimization, helping select the least number of the sparse elements and impose the required constraints on the array radiation pattern. Furthermore, the nulls generated are wide enough to cancel a whole specific sidelobe. Simulation results demonstrate the effectiveness of the proposed method and the required nulls are placed with a minimum number of perturbed elements. Thus, in practical implementations of the proposed method, a highly limited number of attenuators and phase shifters is required compared to other, conventional methods.

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<input type="checkbox"/>	382	Complications of port-a-cath using for chemotherapy, drugs, and fluid administration in Mosul city   [Complicaciones del uso de Port-A-Cath para administraci�n de quimioterapia, f�rmacos y fluidos en la ciudad de Mosul]	Al-Faqe, F.M.M., Al Zobair, A.A., Alzuhairy, B.I.J.	2021	Archivos Venezolanos de Farmacologia y Terapeutica 40(4), pp. 377-383	0
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Hide abstract  [Locate full text](#) [Related documents](#)

Background: Port-A-Cath PAC has been increasingly used in cancer patients undergoing long term chemotherapy, however, no previous study has been done in Mosul for verifying its associated complications with chemotherapy administration. Patients and methods: This is a prospective, observational study that evaluated early and late complications and efficacy of US-guided puncture of the right internal jugular vein (RIJV) for PAC placement. It was conducted on patients who were diagnosed and treated in Mosul Oncology Hospitals in the period from Nov. 2017 to Nov. 2019 and had PAC for chemotherapy, drugs, blood and fluid administration. 93 patients were included in this study and followed up for at least 8 months. Results: Of the 93 included patients, there were 50 (53.7%) male and 43 (46.2%) female patients. Their mean age was 51, with a range from 17-80 years. Early complications were found in 14 (15 %) patients and late complications were found in 13 (13.9%) patients. No pneumothorax complication was reported in our study. Mal-position was occurred in 4 patients who underwent implantation without screening. Pulmonary embolism was never found. Wound bleeding was developed in 3 patients. The accidental arterial puncture occurred in 6 patients for whom PAC was inserted without US guidance and managed simply by direct pressure without surgical intervention. Thrombosis was developed in 3 patients that required anticoagulant therapy, mild and superficial wound infection occur in 7 patients. Conclusion: According to our data, it is safe and cost-effective to use PCA in our patients for their psychological satisfaction and prevention of peripheral vein complications and difficulties in getting venous access. In addition, the port can be used in different ways like antibiotic injections, blood transfusion, fluid administration together with the chemotherapy.

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| <input type="checkbox"/> | 383 | Effect of esomeprazole on lipid profile in patients with peptic ulcer<br><i>Open Access</i> | Abdullah, E., Dhiaa, S., Saleh, K., Merkhan, M. | 2021 | Pharmacia 68(3), pp. 613-617 | 8 |
|--------------------------|-----|---|---|------|------------------------------|---|

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Esomeprazole; a newly introduced PPI has been widely prescribed by healthcare providers due to its improved pharmacokinetic profile. Most users could have other diseases and the PPIs are indicated as acid-suppressor to minimize gastric side effects of polypharmacy. A high percentage of users could suffer from cardiovascular diseases and lipid dysmetabolism. Hence, this study was designed to determine the impact of long-term use of esomeprazole on lipid profile in a normal subject other than having peptic ulcer for which esomeprazole has been indicated. Results confirmed that esomeprazole reduced triglyceride and HDL levels and elevated total cholesterol level and correspondingly LDL level was elevated, however, no effect was noticed with VLDL. To sum up, esomeprazole impaired lipid metabolism in apparently normal healthy individuals apart from having peptic ulcer for which the esomeprazole was indicated, this finding rise a caution during prescribing esomeprazole for the patient with multiple diseases and polypharmacy including cardiovascular ailments.

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<input type="checkbox"/>	384	Acute effect of atorvastatin in comparison with rosuvastatin on glucose homeostasis in hypercholesteremic patients	Almukhtar, H.M., Faisal, I.M., Merkhan, M.M.	2021	Current Topics in Pharmacology 25, pp. 25-34	15
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Short-term in vitro experiments provide evidence that lipophilic statin blocks KATP channel which may improve insulin secretion, whereas, short incubation with hydrophilic statins has no effect on KATP channel. The present study aimed at observing the early effect of atorvastatin and rosuvastatin on glucose levels of prediabetic patients with hypercholesterolemia given the well-established difference in lipophilicity of these two statins. In the present study, thirty-five prediabetic patients with hypercholesterolemia were randomly allocated to 2 groups atorvastatin (n = 20) and rosuvastatin (n = 15); each patient received 20 mg per day of either treatment for 6-weeks. Serum levels of fasting blood sugar (FBS) and glycated hemoglobin (HbA1c) were analyzed before and after 6-weeks of administration. Besides significant improvement in lipid profile, atorvastatin consumption for 6-weeks significantly reduced serum levels of FBG (107.6 mg/dl  $\pm$  1.326 vs basal 124.5 mg/dl  $\pm$  1.381; P = 0.001) and HbA1c (5.616%  $\pm$  0.1039 vs basal 6.413%  $\pm$  0.1277 P < 0.0001). Similarly, rosuvastatin reduced FBG (109.6 mg/dl  $\pm$  3.124 6 vs basal 123.6 mg/dl  $\pm$  1.536), and HbA1c (5.075%  $\pm$  0.1181 vs basal 5.925%  $\pm$  0.1548). However, there was no statistically significant difference between atorvastatin and rosuvastatin on FBG and HbA1c after 6-weeks treatment. In conclusion, both atorvastatin and rosuvastatin exert early improvement in plasma glucose in prediabetic patients with hypercholesterolemia. Further and more powered studies are needed to confirm this observation in diabetic patients; moreover, the studies should include groups on long-term therapy with statin to improve the quality of the result and to reduce the limitation of short-durations.

<input type="checkbox"/>	385	Effect of zinc as an add on to metformin therapy on serum lipid profile and uric acid in type 2 diabetes mellitus patients	Younis, H.Y., Thanoon, I.A., Fadhil, N.N., Merkhan, M.M.	2021	Current Topics in Pharmacology 25, pp. 53-59	9
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Type 2 diabetes mellitus is a slowly progressive disease that may start insidiously and eventually results in secondary complications. The level of zinc in type 2 diabetic patients is significantly lower than in non-diabetics patients. Moreover, high zinc losses in urine further reduce serum zinc in all types of diabetes. This study aims to evaluate the effect of zinc supplementation, as an add-on to metformin therapy, on serum lipid profile and uric acid in type 2 diabetic patients versus metformin therapy alone. This is a case-control study that was conducted at the Diabetes and Endocrinology civil clinics and Diabetes Centre in Mosul, Iraq, from October 17th, 2020 to March 1st, 2021. The study included 67 type 2 diabetic patients. Metformin was provided to 32 patients (15 females and 17 males) as a control group. The other, interventional, group (n = 35; 16 females and 19 males) received metformin and zinc supplement. The serum lipid profile and uric acid level of the enrolled patients were measured at the baseline of the study and after two months, and the results of the two groups were compared. The results confirmed that zinc use significantly lowered total cholesterol, triglycerides, low-density lipoprotein, and Castelli's risk index I of atherogenicity and raised high-density lipoprotein level but did not affect very low-density lipoprotein. No changes were observed in serum lipid profile and uric acid levels in the metformin alone group. Zinc levels were substantially increased and reversed to normal in the zinc plus metformin case group in comparison to the metformin alone group. The study concluded that in type 2 diabetes mellitus patients, measuring zinc levels and compensating for the deficiency by zinc supplementation is recommended. This might carry a beneficial effect on serum lipid profile and uric acid levels, and hence diabetic outcomes.

<input type="checkbox"/>	386	Solar-wind hybrid power system analysis using homer for Duhok, Iraq   [Analiza hybrydowego systemu zasilania energią słoneczno-wiatrową przy użyciu Homera dla Duhok, Irak]	Ibrahim, M.H., Ibrahim, M.A.	2021	Przegląd Elektrotechniczny 2021(9), pp. 139-143	10
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The government of Iraq recently joined the Paris Climate Agreement, it has now begun to encourage the participation of small and large consumers to generate electricity from renewable energy resources. This article analyses a hybrid solar-wind electrical system for Duhok city northern part of Iraq to know the feasibility of this system compared to the local electrical network. Firstly, an access to solar and wind resources have been ensured for Duhok. For evaluation and optimization study, both stand-alone (off-grid) and grid connecting (on-grid) systems taken into consideration to be optimized. HOMER is a software application employed to perform the power and cost analysis based on wind speed, solar irradiance and load profile. According to the numerous configurations. Simulation outcomes have been shown that the on-grid hybrid solar-wind energy system at Duhok site is most cost-effective than off-grid design for the same load, also it is better cost efficient than Duhok residential power grid, as our system cost unit COE is (0.0109 \$/kWh) while Duhok residential electricity COE is 0.1\$/kWh.

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<input type="checkbox"/>	387	Effect of the Receiver's FOV on the Performance of the Indoor VLC Systems	Younus, S.H.	2021	International Journal of Microwave and Optical Technology 16(4), pp. 424-431	1
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This work explores how the single photodetector's (SPD's) field of view (FOV) of visible light communication (VLC) systems can be optimized to attain a high-quality link between transmitters and the receiver while transmitting a high data rate. We utilize the cumulative distribution function (CDF) to optimize the FOV of the SPD in which the optical receiver is placed randomly over 1000 positions in the propose room. At each location, the impulse response is obtained. Empirical analyses are used to find the path loss, delay spread (ds), 3-dB channel bandwidth (H(f)) and signal to noise ratio (SNR) from the impulse response. We test the performance of the propose system with different values of the SPD's FOV (FOV = 90°, FOV = 60°, FOV = 45° and FOV = 30°). In this work, we consider the influence of the diffuse reflections (up to the third order) and we take into account lighting constraints with considering on-off-keying (OOK) modulation. The results show that using SPD with FOV of 45°, allows the VLC system for working at a data rate of 1 Gb/s with SNR not less than 15 dB.

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<input type="checkbox"/>	388	Measurements of alterations in bone mineral density, and body composition in a group of type-2 diabetic women	Majeed, K.G., Dawood, M.H., Mohialdeen, A.K.	2021	NeuroQuantology 19(7), pp. 48-56	0
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Aim: To assess the body composition of fat mass, lean mass, visceral fat mass, and total body water in DM patients and compares their findings with a healthy control group. Material and Methods: A total of 86 people including 40 diabetes Mellitus type 2 matched for sex and age with 46 healthy control participated in the study. BMDs of the lumbar vertebrae and the hip regions like (total femur, femoral neck) were assessed using the DXA technique. The mean age of (DM) group was  $59 \pm 11.82$  years, the height  $1.55 \pm 0.05$  m., the weight  $80.82 \pm 13.25$  kg, and BMI  $33.81 \pm 6.76$  kg/m<sup>2</sup>. Results: The differences in measurements of the lumbar spine BMD ( $1.12 \pm 0.13$  g/cm<sup>2</sup>), total femur BMD ( $1.10 \pm 0.17$  g/cm<sup>2</sup>) neck of femur BMD ( $0.85 \pm 0.35$  g/cm<sup>2</sup>), and total BMD of the body ( $0.90 \pm 0.06$  g/cm<sup>2</sup>) were highly significant in healthy control group as compared to DM patients  $0.84 \pm 0.13$  g/cm<sup>2</sup>,  $0.99 \pm 0.15$  g/cm<sup>2</sup>,  $0.82 \pm 0.24$  g/cm<sup>2</sup> and  $0.79 \pm 0.09$  g/cm<sup>2</sup> respectively. Conclusion: The results shows a highly significant in the lumbar spine, total femur, and total BMC, and not significant in the neck of the femur. The total body lean compartment was not significantly different between DM patients and healthy control women groups. The total body water compartment in the DM women group was highly significant lower different comparing with a healthy control group. The mathematical equations to predict total bone density in DM type 2 and healthy control women were calculated.

<input type="checkbox"/>	389	Evaluation of Sensory Nerve Conduction Abnormalities in Patients with Amyotrophic Lateral Sclerosis	Alkhaffaf, W.H.	2021	Online Journal of Health and Allied Sciences 20(1), pp. 1-4	0
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Background: Amyotrophic lateral sclerosis (ALS) is one of progressive neurodegenerative diseases. Although motor dysfunction is the most prominent problem, some patients identified objective sensory signs. Aims: To determine the presence of electrophysiological sensory nerve abnormalities in ALS patients and to study if there are possible relations between these findings with the gender, age, illness duration, functional status, and receiving Edaravone injection. Materials and methods: Thirty patients diagnosed as definite ALS according to the El Escorial World Federation of Neurology criteria (nineteen of them have received Edaravone injection), and sixty healthy persons, were examined following regular electrophysiological examination routines. Those with abnormal Sensory Nerve Conduction Study (SNCS) were determined, then the possible relations between the abnormal findings with the gender, age, duration of illness, functional status (assessed by using ALS Functional Rating Scale) and receiving Edaravone treatment were studied. Results: The percentage of abnormal SNCS was significantly higher in the patient group, 30% vs. 6.6% in the control group, In the patient group, the relations between these abnormal findings with the age, illness duration, functional status, and receiving of Edaravone drug, all were significant. Conclusion: Numerous studies indicate the involvement of the peripheral nervous system in the ALS disease where the sensory neurons and their axons are affected also. This information is supported by the results of this study in which the extension of sensory involvement is corresponding to the increasing of age, illness duration, functional disabilities, and non-receiving Edaravone drug.

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| <input type="checkbox"/> | 390 Performance investigation of physical layer authentication based on statistical decision strategies | Hani, E., Younis, S. | 2021 | Telecommunications and Radio Engineering (English translation of <i>Elektrosvyaz and Radiotekhnika</i> ) 80(2), pp. 19-34 | 0 |
|--------------------------|---|----------------------|------|---|---|

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In this paper, physical layer authentication based on the estimated channel state information (CSI) over the subcarriers of wireless orthogonal frequency division multiplexing (OFDM) systems has been studied to provide reliable and augmented authentication solutions for wireless communication devices. The binary hypothesis test with channel-discriminative functions that are based on measuring the difference between channel features and CSI profile clustering is investigated. A comprehensive performance evaluation for the considered channel-discriminative functions in frequency-selective fading channels is presented. Simulation results demonstrated that the security performance depends on the channel frequency selectivity. The decision metrics that measure the difference between the channel features demonstrated improved performance with the increase of channel variation over the subcarriers. In contrast, the CSI profile clustering method exhibited significant degradation in the performance for moderate and severe frequency selectivity conditions. Therefore, for the clustering method the channel fingerprint should be extracted from the neighboring subcarriers, while in other methods the channel features should be extracted from disjoint pilots in order to optimize the security performance over frequency-selective channels.

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<input type="checkbox"/>	391	Efficient machine learning-enhanced channel estimation for OFDM systems <i>Open Access</i>	Jebur, B.A., Alkassar, S.H., Abdullah, M.A.M., Tsimenidis, C.C.	2021	IEEE Access 9,9486896, pp. 100839-100850	11
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Recently much research work has focused on employing deep learning (DL) algorithms to perform channel estimation in the upcoming 6G communication systems. However, these DL algorithms are usually computationally demanding and require a large number of training samples. Hence, this work investigates the feasibility of designing efficient machine learning (ML) algorithms that can effectively estimate and track time-varying, frequency-selective channels. The proposed algorithm is integrated with orthogonal frequency-division multiplexing (OFDM) to eliminate intersymbol interference (ISI) induced by the frequency-selective multipath channel and compared with the well-known least square (LS) and linear minimum mean square error (LMMSE) channel estimation algorithms. The obtained results have demonstrated that even when a small number of pilot samples,  $N_P$ , is inserted before the  $N$  subcarriers OFDM symbol, the introduced ML-based channel estimation is superior to the LS and LMMSE algorithms. This dominance is reflected in the bit-error-rate (BER) performance of the proposed algorithm, which attains a gain of 2.5 dB and 5.5 dB over the LMMSE and LS algorithms, respectively, when  $N_P = \frac{N}{8}$ . Furthermore, the BER performance of the proposed algorithm is shown to degrade by only 0.2 dB when the maximum Doppler frequency is randomly varied. Finally, the number of iterations required by the proposed algorithm to converge to the smallest achievable mean-squared error (MSE) are thoroughly examined for various signal-to-noise ratio (SNR) levels.

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<input type="checkbox"/>	392	Predicting PM <sub>2.5</sub> levels over the north of Iraq using regression analysis and geographical information system (GIS) techniques <i>Open Access</i>	Hamed, H.H., Jumaah, H.J., Kalantar, B., (...), Mansor, S., Khalaf, Z.A.	2021	Geomatics, Natural Hazards and Risk 12(1), pp. 1778-1796	13
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Particulate matter (PM<sub>2.5</sub>) concentrations are a serious human health concern and global models are the common methods for PM<sub>2.5</sub> particle estimation disregarding the local changes and factors. In this study, a polynomial model for PM<sub>2.5</sub> particles prediction was proposed to examine the correlations among PM<sub>2.5</sub>, PM<sub>10</sub>, and meteorological parameters. The study was carried out in the north of Iraq including two provinces; Kirkuk and Sulaymaniyah. The data gathered from different sources. Two datasets have been used, collected during July 2019 and February 2020. To test our methodology, the model was applied on a small subset of the study area (5.6 km<sup>2</sup>) inside the Kirkuk province. Datasets (observation and ground truth) were utilized to examine the model. Based on the July 2019 dataset, the mean local R<sup>2</sup> values were estimated at 0.98 and 0.97 in the north part of Iraq, and inside the Kirkuk province (the small subset), respectively. While based on the February 2020 dataset, the mean local R<sup>2</sup> values were estimated at 0.98 inside the Kirkuk province. High values of prediction accuracies were obtained by 82% and 96% in July and February, respectively. Moreover, our findings highlighted that the health impacts and air quality varied from moderate to unhealthy in the region.

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<input type="checkbox"/>	393	Efficacy and tolerability of melatonin versus topiramate in migraine prevention   [Eficacia y tolerabilidad de la melatonina frente al topiramato en la prevención de la migraña]	Alkhaffaf, W.H., Almahdawi, A.M.	2021	Archivos Venezolanos de Farmacologia y Terapeutica 40(1), pp. 27-32	2
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Background: Migraine is one of the common neurological diseases. the aims of this study are to compare the effectiveness and tolerability of Topiramate and Melatonin drugs as monotherapy in the prophylaxis of migraine and to support the use of Melatonin as a preventive therapy. Materials and Methods: A prospective, comparative study, in which 200 Patients diagnosed with migraine were enrolled. Monthly headache frequency, headache severity, mean attack duration in hours, and disability, were assessed at the baseline and at the end of 3rd month of follow up. Tolerability measures including the incidence of adverse events were recorded also. Results: Forty patients withdrew from the study, the analysis was performed for the remaining cases, 160 patients, (76 in topiramate group and 84 in melatonin group). There was a significant improvement in the clinical response after 3 months of treatment in all parameters, and without significant differences between both groups. Conclusion: This study showed that the Melatonin is effective as, if not superior to, Topiramate for episodic migraine prophylaxis. Moreover, it is more tolerated and has less adverse events than Topiramate.

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| <input type="checkbox"/> | 394 | Silent hyperlipidaemia modulated vascular endothelial markers<br><i>Open Access</i> | Merkhan, M.,<br>Mohammad, J.,<br>Fathi, Z., (...),<br>Mahmood, S.,<br>Mohammed, M. | 2021 Pharmacia<br>68(2), pp. 479-484 | 27 |
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The aetiology of ischemic heart diseases is mainly based on atherosclerosis of coronary artery. Inflammation and oxidative reactions are initiating and aggravating the illness resulting in pathological remodelling of vasculature at site of injury. Endothelium lining of blood vessels participated in the reaction biochemically through releasing some proteins into circulatory system which further complicate the condition. The aim of this study was to determine early diagnosed hyperlipidaemia-associated changes of the plasma level of some of these endothelial biomolecules. Compared to healthy control, hyperlipidaemic patients have significantly increased arginase, metalloendopeptidase, peroxidase, myeloperoxidase, and peroxynitrite with concomitant reduction in arylesterase and nitric oxide. The present study concluded that hyperlipidaemia play a great role in modulation of certain plasma protein markers which might be directly related to patient pathological condition or could be used as a tool for diagnosis or patient follow up indicating the stage of vasculature remodelling, healing, inflammation or resolution.

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| <input type="checkbox"/> | 395 | Going deeper: Magnification-invariant approach for breast cancer classification using histopathological images<br><i>Open Access</i> | Alkassar, S., Jebur, B.A., Abdullah, M.A.M., Al-Khalidy, J.H., Chambers, J.A. | 2021 | IET Computer Vision 15(2), pp. 151-164 | 25 |
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Breast cancer has the highest fatality for women compared with other types of cancer. Generally, early diagnosis of cancer is crucial to increase the chances of successful treatment. Early diagnosis is possible through physical examination, screening, and obtaining a biopsy of the dubious area. In essence, utilizing histopathology slides of biopsies is more efficient than using typical screening methods. Nevertheless, the diagnosing process is still tiresome and is prone to human error during slide preparation, such as when dyeing and imaging. Therefore, a novel method is proposed for diagnosing breast cancer into benign or malignant in a magnification-specific binary (MSB) classification. Besides, the introduced method classifies each type into four subclasses in a magnification-specific multcategory (MSM) fashion. The proposed method involves normalizing the hematoxylin and eosin stains to enhance colour separation and contrast. Then, two types of novel features —deep and shallow features—are extracted using two deep structure networks based on DenseNet and Xception. Finally, a multi-classifier method based on the maximum value is utilized to achieve the best performance. The proposed method is evaluated using the BreakHis histopathology data set, and the results in terms of diagnostic accuracy are promising, achieving 99% and 92% in terms of MSB and MSM, respectively, compared with recent state-of-the-art methods reported in the survey conducted by Benhammou on the BreakHis data set using deep learning and texture-based models.

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<input type="checkbox"/>	396	Mrac based pid controller design with genetic algorithm for a single joint robot arm	Alnema, Y.H., Alsabawee, A.I., Ahmed, J.M.	2021	International Journal on Engineering Applications 9(2), pp. 86-93	8
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– The Nonlinearity of the actuators in dynamical systems leads to bad performance of the conventional feedback controllers in online execution. Furthermore, the closed loop controllers may be subjected to the changes in the environmental conditions and fluctuation of disturbances. In order to tackle this issue, this paper depicts a PID controller design based on a Model as a Reference with Genetic Adaptive Control, which is presently named (MRGAC) arrangement via employing the MIT rule in order to implement the adaption mechanism. In this abovementioned rule (MIT) the cost function is predefined as an optimization function that indicates the inaccuracy between the outputs of the working plant and the reference model used. The constraints of the controller are adjusted in a way so that this cost function is reduced to the minimum. The goal behind this work is to increase the stability of the DC motor angle that positions a single joint robot arm in free space by defining a reference model to mimic and track its response performance parameters with acceptable values. MIT rule is used for the Model Reference that is already stable and has known parameters. The contribution of this work is to adopt the gradient (MIT) with genetic algorithm (GA) that is auto tune the controller's factors. Adaption of PID using of the optimization tactics, which is Genetic algorithm, will improve the system performance to reach steady state rapidly. Copyright © 2021 Praise Worthy Prize S.r.l.-All rights reserved.

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<input type="checkbox"/>	397	A method for thinning useless elements in the planar antenna arrays	Mohammed, J.R.	2021	Progress in Electromagnetics Research Letters 97, pp. 105-113	15
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In this paper, the thinning space is constrained to only outer sub-planar array elements instead of fully filled planar array. Since the amplitude weights of the outer elements have small amplitude excitations, they can be optimized to find the least useful elements and remove them without affecting the desired radiation characteristics. The binary genetic algorithm is used to perform such thinning optimization. Simulation results show that roughly the same performance can be achieved when the number of removed elements in the outer sub-array relative to the total number of the planar array elements does not exceed 19%. In addition, to keep the size of the thinned array equal to that of the original filled array, the perimeter elements were excluded from the thinning process. Also, some constraints on the thinned array pattern are imposed to control the null directions toward interfering signals.

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| <input type="checkbox"/> | 398 | High-resolution direction of arrival estimation method based on sparse arrays with minimum number of elements<br><i>Open Access</i> | Mohammed, J.R. | 2021 | Journal of Telecommunications and Information Technology<br>2021(1), pp. 8-14 | 3 |
|--------------------------|-----|---|----------------|------|---|---|

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Regular fully filled antenna arrays have been widely used in direction of arrival (DOA) estimation. However, practical implementation of these arrays is rather complex and their resolutions are limited to the beamwidth of the array pattern. Therefore, higher resolution and simpler methods are desirable. In this paper, the compressed sensing method is first applied to an initial fully filled array to randomly select the most prominent and effective elements which are used to form the sparse array. To keep the dimension of the sparse array equal to that of the fully filled array, the first and the last elements were excluded from the sparseness process. In addition, some constraints on the sparse spectrum are applied to increase estimation accuracy. The optimization problem is then solved iteratively using the iterative reweighted  $l_{1/1}$  norm. Finally, a simple searching algorithm is used to detect peaks in the spectrum solution that correspond to the directions of the arriving signals. Compared with the existing scanned beam methods, such as the minimum variance distortion-less response (MVDR) technique, and with subspace approaches, such as multiple signal classification (MUSIC) and ESPRIT algorithms, the proposed sparse array method offers better performance even with a lower number of array elements and in severely noisy environments. Effectiveness of the proposed sparse array method is verified via computer simulations.

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| <input type="checkbox"/> | 399 | Design and implementation of improved fractal loop antennas for passive uhf rfid tags based on expanding the enclosed area<br><i>Open Access</i> | Sultan, Q.H.,<br>Sabaawi, A.M.A. | 2021 | Progress In Electromagnetics Research C<br>111, pp. 135-145 | 6 |
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—In this paper, new fractal curves are designed, simulated, and implemented for passive UHF RFID application. 5-, 6-, 7-, and 8-sides polygon fractal loops are proposed and implemented in this work based on the 2nd iteration. It is shown that increasing the number of sides can improve the performance and minimize the size of the fractal antenna. The designed fractal loop antennas have been compared with other fractal loop antennas published previously, and the recent antennas show a better performance. The designed antennas are fabricated using PCB technology, and the antenna parameters are measured experimentally and compared to CST simulations. There is an acceptable agreement between the simulated and measured results. The effect of different materials on antenna performance is also studied.

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<input type="checkbox"/>	400	Skin disease among aged 1-17 years in displaced people in City of Mosul, Iraq	Ibrahim, R.H., Yahya, Y.K.	2021	Pakistan Journal of Medical and Health Sciences 15(1), pp. 442-444	0
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Background: The fact that there are more children with skin diseases indicates that the disease is a significant reason for children's health issues. Knowledge about the prevalence of skin diseases is minimal. Aim: To compare, in general practice, the occurrence of skin diseases in infants. Methods: This study has compared the data of all children aged 1-17 years from two different surveys. A longitudinal register of GP consultations was made over 12 months. For each disease episode, a primary care provider diagnosed and coded it. Incident rates for skin diseases were calculated by dividing all new cases by the average study population at risk. Socio-demographic characteristics were stratified. Results: The overall incidence rate of all skin diseases decreased between 2018 and 2019. Incidence increased among babies. Girls got more skin problems. In general practice, cases of specific skin diseases increased, whereas warts, skin injuries and contact dermatitis decreased. Conclusion: In total, the incidence rate of all skin diseases decreased, while the incidence rates of bacterial, mycotic, and atopic skin diseases increased.

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<p>This paper presents the design of a Proportional-Integral (PI) controller using the Programmable Logic Controller (PLC) techniques to control the temperature of water heated by oil fired heaters that are much used in Iraq. Our laboratory work consists of hardware part: the LOGO! V6 PLC, the thermostat, the analogue output valve and the oil fired water heater with its accessories while the software part includes Function Block Diagram (FBD) programming language of our PLC. The P and I parameters are found manually and their roles are also discussed in this paper. The designed control system can serve a precise way to control physical parameters within a desired range in the laboratory. In this paper, the authors focus on how the PI controller measures the temperature of the heated water in the oil fired heater and controls the aperture of the analog valve which controls the flow rate of the oil from the tank to the furnace of the heater according to the measured temperature.</p>				
<input type="checkbox"/> 402	A Band Pass Frequency Selective Surface Using U-Shaped Slots	Al-Atrakchii, M.A., Sayidmarie, K.H., Abd-Alhameed, R.A.	2021 International Journal of Microwave and Optical Technology 16(1), pp. 36-43	0
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<p>In this paper, a simple and compact shape for the FSS is proposed, in which the resonant element is a slot in the form of the letter U and placed on a dielectric sheet. The folded slot has a length of about 1/4 of the wavelength, which is a considerable size reduction in comparison with other shapes. An example of the FSS was designed to pass the WiMAX frequency of 3.5 GHz and was investigated using the CST software package. The bandpass characteristics are shown for the two cases of the vertical and horizontal polarizations of the incident electric field. The obtained results are explained by considering the surface current distribution and electric field at the strip as well as the metamaterial behavior across the reject band. This approach gives a better insight into understanding the frequency-selective property of the FSS. The results show that a shielding screen can pass certain frequencies when an FSS of U-shaped slots are etched in the screen.</p>				

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<input type="checkbox"/> 403 A Full-Duplex Communication Scheme using Three Antennas and a Modified 180° Hybrid Coupler	Jasim, A.A., Sayidmarie, K.H.	2021	International Journal of Microwave and Optical Technology 16(1), pp. 63-72	0
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In-Band Full-Duplex (IBFD) systems that simultaneously transmit and receive over the same time slots, and the frequency band lead to twofold the capacity for a particular bandwidth. Nevertheless, IBFD systems suffer from the Self Interference Signal (SIS), which can be 100 dB higher than the desired received signal. Suppression of the SIS is necessary to implement the Full-Duplex (FD) practically. Therefore, the FD system has to consider this issue and mitigate the SIS to the noise floor level. This paper presents an antenna cancellation method for the IBFD systems, which comprises three hexagonal patch antennas with a developed 180o hybrid coupler. The three antennas and the coupler are combined together to get a compact size and avoid performance deterioration due to connectors and cables mismatch. The complete system was modeled and optimized using the CST Software to obtain a high Self Interference Cancellation (SIC) over a wider bandwidth. Simulation results show that the proposed technique can provide 75 dB cancellation at the operating frequency (5 GHz), and better than 45 dB cancellation over a 170 MHz bandwidth covering (4.93-5.1) GHz, which is considered a significant achievement. The final structure with 160 mm x 48 mm (2.67 λ x 0.8 λ) was fabricated and measured practically using a vector network analyzer (VNA). The practical results were close to the simulated results apart from a small shift in frequency.

<input type="checkbox"/> 404 Levels of antinuclear and anti-double stranded antibodies in sera of breast cancer patients <i>Open Access</i>	Hachim, S.K., Ali, A.S., Ali, M.R.	2021	Tropical Journal of Natural Product Research 5(1), pp. 62-65	0
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Antinuclear antibodies (ANAs) and anti-double stranded deoxyribonucleic acid antibodies (ADSADs) are autoantibodies that have been linked to biomarkers of systemic autoimmune diseases. Although their involvement in relation to breast cancer is yet to be examined. Therefore, this study evaluated the serum concentration of ANAs and ADSADs in breast cancer patients, with a view to finding diagnostic biomarkers. One hundred female patients with breast cancer which were recently diagnosed depending on histopathology and hormonal receptor criteria by an oncologist, and another twenty-five females as healthy control group were recruited for the study. Direct interview of the female patients and healthy (control) group was conducted in addition to the information from patients' registration records in the hospital. An aliquot of 5 mL of intravenous blood was collected from each subject to recover serum samples after centrifugation. An enzyme-linked immunosorbent assay (ELISA) was used to measure the concentrations of ANAs and ADSADs in the sera. The mean age of breast cancer patients was 55.60 years, while that of the healthy control group was 56.76 years. There was a highly significant ( $P < 0.05$ ) association between ANA of breast cancer patients and grade, as well as stage ( $MCP < 0.01$ ). On the contrary, the concentration of ADSADs was showing no significant association with the grade ( $MCP > 0.05$ ) and stage ( $MCP > 0.05$ ) of breast cancer patients. Conclusively, our findings suggest the use of ANA as a diagnostic biomarker for breast cancer patients.

<input type="checkbox"/> 405	Rectangular grid antennas with various boundary square-rings array <i>Open Access</i>	Mohammed, J.R.	2021	Progress in Electromagnetics Research Letters 96, pp. 27-36	7
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<p>Rectangular grid antennas are widely used in practice due to their advantages and versatility. This paper simplifies the design procedures of such antennas by optimizing their radiation characteristics using minimum number of the optimized elements while maintaining the same performance. The method consists of partitioning a fully square grid array into two unequally sub-planar arrays. The first one contains the inner and the most central elements of the initial planar array in which they are chosen to be non-adaptive elements, while the remaining outer and boundary elements which constitute L number of the square-rings are chosen to be adaptive elements. Then, the optimization process is carried out on those outer rings instead of fully planar array elements. Compared to a standard <math>N \times M</math> planar array with fully adaptive elements, the number of optimized elements could be reduced from <math>N \times M</math> to <math>2\{2L(N - L)\}</math>, so as to significantly reduce the system cost without affecting the overall array performance. Results of applying the proposed method to optimize a small <math>9 \times 9</math>, medium <math>20 \times 20</math>, and large <math>40 \times 40</math> size planar arrays with various values of L are shown.</p>				

406 Enhanced Secrecy Performance of Multihop IoT Networks with Cooperative Hybrid-Duplex Jamming *Open Access* Abdullah, Z., Chen, G., Abdullah, M.A.M., Chambers, J.A. 2021 IEEE Transactions on Information Forensics and Security 16,9127932, pp. 161-172 20

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		<p>As the number of connected devices is exponentially increasing, security in Internet of Things (IoT) networks presents a major challenge. Accordingly, in this work we investigate the secrecy performance of multihop IoT networks assuming that each node is equipped with only two antennas, and can operate in both Half-Duplex (HD) and Full-Duplex (FD) modes. Moreover, we propose an FD Cooperative Jamming (CJ) scheme to provide higher security against randomly located eavesdroppers, where each information symbol is protected with two jamming signals by its two neighbouring nodes, one of which is the FD receiver. We demonstrate that under a total power constraint, the proposed FD-CJ scheme significantly outperforms the conventional FD Single Jamming (FD-SJ) approach, where only the receiving node acts as a jammer, especially when the number of hops is larger than two. Moreover, when the Channel State Information (CSI) is available at the transmitter, and transmit beamforming is applied, our results demonstrate that at low Signal-to-Noise Ratio (SNR), higher secrecy performance is obtained if the receiving node operates in HD and allocates both antennas for data reception, leaving only a single jammer active; while at high SNR, a significant secrecy enhancement can be achieved with FD jamming. Our proposed FD-CJ scheme is found to demonstrate a great resilience over multihop networks, as only a marginal performance loss is experienced as the number of hops increases. For each case, an integral closed-form expression is derived for the secrecy outage probability, and verified by Monte Carlo simulations.</p>				
<input type="checkbox"/> 407		Data Security System for IoT Applications	Mohammed, S., Al-Jammas, M.H.	2020	3rd International Conference on Advanced Science and Engineering, ICOASE 2020 9436579, pp. 86-91	0

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The Internet of Things (IoT); can be defined as a think connected to the internet anywhere and anytime. Data security is one of the vital concepts in IoT security. So, the data to be uploaded should be made secure. There are many differenced cryptography algorithms such as Advanced Encryption Standard (AES), Nth degree truncates polynomial ring (NTRU), RSA, DES, and others to make security for data in IoT. In this paper, we suggest an algorithm that combines the feature of symmetric and asymmetric cryptography algorithms. Where the AES algorithm and NTRU public key used to create the special key at the receive side, then send the key to the sender side to make data security for IoT. The proposed algorithms provide strong security and low computation. The model has been simulating by MATLAB. The execution time for text (526 characters) for key generation is 0.092414 seconds, 0.020521 seconds for encryption and 0.060921 seconds for decryption and the execution time for image with size (512 \* 512) for key generation is 0.101900 seconds, 1.699665 seconds for encryption and 12.82071 seconds for decryption.

<input type="checkbox"/> 408	Video Delivery Based on Random Linear Network Coding	Younus, A.M., Al-Jammas, M.H.	2020	3rd International Conference on Advanced Science and Engineering, ICOASE 2020 9436533, pp. 97-102	0
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The rapid growth of video transmission and the increasing demand for high-definition, multi-display, and the wide-area video services in recent years. It resulted in the need for robust technologies to cover these requirements. RLNC is one of the most promising methods for video delivery, improving throughput, utilizing bandwidth capacity, and saving High reliability and low latency. In this paper, we discuss the possibility of applying the RLNC algorithm to video transmission and the benefit of the features of its previously mentioned. We design a proposed model using Matlab consisting of three stages: encoder in the source node, recorder in the intermediate node, and decoder in the destination node. From this model, we got a zero-bit error rate BER between the frames to transmit and receive end, throughput is increased by 25% from previous, and increasing bandwidth capacity utilization by sending more than one packet in the transmission process, thus reducing the number of transmission times.

<input type="checkbox"/> 409	Equivalent Circuit Design Method for Wideband Nonmagnetic Absorbers at Low Microwave Frequencies	Hossain, M.I., Nguyen-Trong, N., Sayidmarie, K.H., Abbosh, A.M.	2020	IEEE Transactions on Antennas and Propagation 68(12),9055357, pp. 8215-8220	49
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An accurate equivalent circuit (EC) design approach for wideband nonmagnetic absorbers operating at the low microwave frequency (1-10 GHz) is presented. Following the impedance matching approach, this communication introduces an EC model based on the simulated data and synthetic asymptotes for single- and double-layer frequency-selective surface (FSS)-based nonmagnetic absorbers. Two simple and commonly used resistive FSSs, i.e., square patch and single square loop, are considered in this communication. Compared to the full-wave simulations, the proposed EC model shows more than 95% accuracy. By employing the proposed model and genetic algorithm-based optimization, several designs of broadband absorbers are demonstrated. The presented single- and double-layer FSSs show 126% and 161% fractional bandwidth, respectively, with the total thickness close to the Rozanov limit. The results confirm that the proposed method is a simple and efficient way of designing thin wideband absorbers using single- or double-layer FSS configurations.

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<input type="checkbox"/>	410	Performance evaluation of pi controller for positive output Luo converter <i>Open Access</i>	Ibrahim, M.A.	2020	International Journal of Power Electronics and Drive Systems 11(4), pp. 1816-1825	7
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The aim of this work is to design and analyze a Proportional Integral (PI) controller for Positive Output Luo Converter applications. Positive Output Luo Converter is a developed DC-DC converter. It is respected as a right choice for most industrial application where the rate of the output load voltage must be varying between the low and high values of the input value of voltage, output voltage rise and fall is smaller. This converter involve Power electronics switches (Diodes and MOSFET) since these elements are non-linear. The detailed model includes high-frequency switching that is introducing discontinuities into the model. PI controller coefficients ( $k_p$ ,  $k_i$ ) are calculated by particle swarm optimization (PSO) to provide optimal PI as hybrid PI by PSO controller with simple design procedure. .Transient and steady state responses requirement of the system are considered in designing the proposed PI controller. The consequences show that the time of performing characteristics of PSO-PI controller established on integral squared error (ISE) performance index has the best time performing characteristics, line disturbance, load disturbance and set point variation.

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<input type="checkbox"/>	411 Investigation of cartesian routing for unmanned aerial vehicle networks <i>Open Access</i>	Al-Sofy, K.M., Al-Talib, S.A.	2020	IOP Conference Series: Materials Science and Engineering 928(2),022002	1
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Unmanned aerial vehicles (UAVs), commonly known as drones, are a pilotless aircraft that does not require any direct human intervention for flying. It can move autonomously based on its pre-programmed software, or can be remotely controlled. Besides its basic plane components, it also contains some computing devices and sensors for determining its position and for gathering information from the mission area. Flying Ad hoc Networks (FANET) are comprised of autonomous flying vehicles. It is a special case of mobile ad hoc networks (MANETs) characterized by a high degree of mobility. One of the most difficult and complex challenges facing FANETs is the routing process. To achieve this goal the Cartesian Orientation Protocol is used. The Cartesian routing protocol exploits geographic information for UAVs rather than using the address to direct packets to its destination. In this work, the most prominent algorithms based on geographic location has been highlighted that have been adapted to work in a three-dimensional environment and implemented in a common scenario and evaluated through several measures such as Packet Delivery Ratio, Path Dilation and End-to-End Delay.

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<input type="checkbox"/>	412	Investigate and Compare Software-Defined Network Controllers for UAV Networks Management <i>Open Access</i>	Al-Gboury, H.A., Al-Talib, S.A.	2020	IOP Conference Series: Materials Science and Engineering 928(2),022055	1
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Unmanned aerial vehicles that abbreviates (UAVs) are flying platforms, known as drones, which have features such as mobility, adaptive altitude and flexibility. UAVs admit numerous applications that can be used as aerial base stations to enhance coverage, capacity, and energy efficiency of wireless networks. On the other hand, UAVs can operate as flying mobile terminals within a cellular network. Such cellular-connected UAVs can enable several applications ranging from real-time video streaming to item delivery. A Software Defined Network (SDN) Controller is the application that acts as a strategic control point in a software-defined network. It is the 'brain' of the network. Controller manages flow control to the routers/switches 'under' (via southbound APIs), the business logic and applications 'above' (via northbound APIs) to deploy intelligent networks. Wireless networking with software defined (SDWN) is the use of SDN conceptions in wireless networks by using a controller in the control plane. SDWN facilitates the creation of new adaptive mechanisms according to various applications and user requirements, such as mobility, handover, security and quality of service (QoS). In this paper, simulation work has been conducted to compare and investigate four SDN controllers (Pox, Ryu, Floodlight and OpenDaylight) in order to see which one is suitable to be used. Mininet-Wifi has been selected as the simulation tool to do the experiments and Python script for programming. The results obtained reveals that Ryu controller is the best selection in terms of latency and packet loss.

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<input type="checkbox"/>	413	Age-dependent changes in bone mineral density for males and females aged 10-80 years <i>Open Access</i>	Hamid, H.M., Majeed, K.G., Saeed, S.H.	2020	IOP Conference Series: Materials Science and Engineering 928(7),072052	0
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BACKGROUND: One of the most accurate and highly reproducible techniques is dual- energy x-ray absorptiometry (DXA). DXA device used to measure BMD, BMC, T-score, Z-score, and consequently used to measure fat mass (FM) and lean mass (LM) for different body sites such as arms, ribs, thoracic spine, lumbar spine, pelvis, legs and whole body. DXA technique is widely used in clinical application researches like diagnosing and treating osteoporosis in elderly men and women with different diseases and assessment of skeleton status. METHODS: One hundred and seventy-six males and females participated in the current study consisting of 48 males and 128 females were evaluated by Dual Energy X-ray Absorptiometry (DXA). RESULTS: The estimated correlation coefficients values were as follows: total BMD depending on segmental BMD of arms, legs were fitted with correlation coefficient of (r=0.92) and (r=0.91) respectively; also it were fitted with (r=0.85), (r=0.84), (r=0.73), (r=0.70), and (r=0.65) for head, pelvis, ribs, thoracic spine and lumber spine respectively;  $p < 0.0001$ . CONCLUSION: The mean total bone mineral density BMD of the total body for both genders shows highly significant; (p-value = 0.0001) through the ages (20-29). The same results are shown in the ages of (60-69) years with a significant relationship between males and females; (p=0.01). All the other groups (10-19), (30-39), (40-49), (50-59) and (70-80) years showed no significant relationship between both genders, where all mean total BMD amounts were small in female subgroups;  $p > 0.01$ .

<input type="checkbox"/>	414 Omnidirectional Robot Indoor Localisation using Two Pixy Cameras and Artificial Colour Code Signature Beacons	Nihad Noaman, M., Yousif Abdoon Al-Shibaany, Z., Al-Wais, S.	2020	ACM International Conference Proceeding Series pp. 110-118	0
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Location estimation of Autonomous mobile robots is an essential and challenging task, especially for indoor applications. Despite the many solutions and algorithms that have been suggested in the literature to provide a precise localisation technique for mobile robots, it continues to be an open research problem and worth further study. In this paper, a predefined map with artificial colour code signature (CCs) beacons are used to build an effective algorithm to achieve an indoor localisation and position prediction of an omnidirectional mobile robot. This algorithm is primarily based on calculating the distance between the robot and the beacon using Pixy cameras, as vision sensors; then, estimating the position of the robot using a trilateration method. By comparing the results obtained in this paper with the mathematically obtained results, it is clearly shown that the robot effectively follows the localisation algorithm to estimate its pose (position and orientation), improving its localisation abilities in addition to obtaining its initial position. Furthermore, the limitations associated with using Pixy cameras are discussed in this paper as well.

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<input type="checkbox"/>	415	Real-Time Pose Estimation for Human-Robot Interaction	Al-Sheekh, S.D., Younus, M.D.	2020	Proceedings - 2020 2nd Annual International Conference on Information and Sciences, AiCIS 2020 9408252, pp. 86-90	1
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Text-based communication is one of the most popular categories used. Emails, SMS messages while the voice call is better than text. it connects several remote people at once and it is more personal and easier than text. currently, the video call is the best method for communication between people. After transmitting of text, voice, and video successfully the next step is motion transmission. Motion-based communication requires detection of human motion in the sending site and motivation of robot's servo motors in the receiving site. The most important step in motion-based communication is the detection of human pose in real-time and good accuracy because this detection will be driven to a servo motor. If there is some wrong in detection, it will be dangerous because the robot may be damage itself or the motion may be harmful. In this paper, we propose a realtime method for motion transmission by using deep neural networks (DNN) for the detection of human body joints, Then convert the obtained results into commands suitable to work in robot environment. And implement the results on robot so that the human motion corresponds to that of the robot in real-time.

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<input type="checkbox"/>	416	Machine Learning based Decision Strategies for Physical Layer Authentication in Wireless Systems	Enad, E.H., Younis, S.	2020	Proceedings - 2020 2nd Annual International Conference on Information and Sciences, AiCIS 2020 9408287, pp. 114-118	4
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In this paper, machine learning (ML) based decision strategies for physical layer authentication are presented. The intelligent authenticators learn the channel features and then classify the received message based on the channel attributes into two categories, legitimate or illegitimate. The training set construction using different features of the estimated channel fading coefficients explored. In addition, ML based physical layer authentication is compared with the statistical discriminative function formulated in binary hypothesis test with a pre-defined threshold. Simulation results demonstrated that the performance of intelligent authenticators outperform the statistical decision scheme as significant improvement can be achieved in the detection rate with minimum false alarm rate. The overall authentication accuracy measured in terms of the area under the receiver operating characteristic curve (AUC) confirmed the superior performance of the the support vector machine (SVM) based physical layer authentication compared with other ML approaches. In addition, it is concluded that using two distinct features improves the authentication performance compared with feature space constructed only from test statistic metrics.

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<input type="checkbox"/>	417	Effect of pacifier use on feeding practice in early infancy <i>Open Access</i>	Al-Hafidh, N.M., Al-Sawaf, F.B., Khalaf, R.H.	2020	Annals of Tropical Medicine and Public Health 23(19)	0
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Many local breast-feeding infants were observed using pacifiers during first month of life. This study aimed to assess the effect of using pacifier during the period of breast-feeding establishment on breast-feeding weaning age. A case control study comparing 131 pacifier users' children during their first month of life versus 173 non-pacifier users in relation to breast feeding weaning age. Each enrolled child was = 6 - 12 months age and was exclusive breast feeder for at least the first month of their life. One third (33.6 %) of pacifier user infants had pacifier in their first day of life; Male infant were significantly ( $p = 0.004$ ) more frequent pacifier users than female infants. Infants from extended family structure possessed 11.7 times risk to be a pacifier user (OR: 11.7, CI: 6.747-20.311). Nearly three quarter (71.8%) of pacifier users discontinued breast feeding prior to 6 months of age whereas about two thirds (62.4 %) of pacifier not user maintained on breast feeding beyond age of 6 months ( $p = 0.000$ ). Using a pacifier carried 4.2 times risk of early weaning from breast-feeding prior to 6 months of age (OR: 4.2, 95% CI 2.59-6.89). Factors that significantly predict early discontinuation of breast-feeding among studied variables were pacifier use, illiterate mother, and extended family structure. Pacifier use in the first month of life must be avoided to support longer than 6 months duration of breast-feeding.

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<input type="checkbox"/>	418	Cancer Care in Times of War: Radiation Oncology in Iraq	Mula-Hussain, L., Al-Ghazi, M.	2020	International Journal of Radiation Oncology Biology Physics 108(3), pp. 523-529	8
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[No abstract available]

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 419	Study of Efficiency-limiting Defects in Silicon Solar Cells	Sabaawi, A.M.A., Khaleel, A.N., Yahya, Z.S., Sabaawi, A.M.A.	2020	11th International Renewable Energy Congress, IREC 2020 9310427	0

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The paper presents an investigation into the impact of most common defects in silicon solar cells that degrades the total conversion efficiency. These defects will be modelled using SCAPS software and a comparison will be introduced to show the real impact on the device performance. Extensive simulations will be performed based on the I-V characteristics of the designed solar cell. This type of studies provides a deep physical insight into the influence of defects and impurities and how they reduce the solar cell performance.

<input type="checkbox"/> 420	IPsec Cryptography for Data Packets Security within VPN Tunneling Networks Communications	Mahmmod, K.F., Azeez, M.M., Ahmed, M.A.	2020	Proceedings of the International Conference on Electrical Engineering and Informatics 2020-October,9315407	2
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The internet today allows us to communicate with anyone from anywhere in the world. This kind of access is available to legitimate as well as illegitimate users. Therefore, data security is required to be updated from time to time to prevent hacking attacks. To access all data with a high level of security, along with obtaining an excellent quality of service, Virtual Private Network (VPN) is considered as one of the optimum solutions. In this paper, we introduce a faster way and more confidential encryption method to packet payloads for tunnel networks, based on public-key generation by using a linear feedback shift register. In this mechanism, parallel processing of internet protocol security (IPsec) for the packets is achieved. The proposed method is considered as an approach to improve the handling of IPsec by using one of its efficient members called Encapsulating Security Payload (ESP) protocol. The latter shows superiority over other protocols utilized for the same purposes as the Secure Sockets Layer (SSL). Furthermore, it is found that the data flow is increased by using IPsec type Authentication Header (AH) protocol. Additionally, this proposed technique can satisfy a significant reduction in the delay caused by encryption by at least 15%, along with increasing the efficiency and the throughput on the Internet. Moreover, the proposed cryptography enables the development of special processors for encryption with Field Programmable Gate Array (FPGA) chips that can be available in the form of devices attached to networks.

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<input type="checkbox"/>	421	Coronary Artery Bypass Grafting with Additional Procedures	Al-Yakoob, Z.T.M., AlFaqe, F.M.M., Alsultan, A.A.	2020	Journal of Cardiovascular Disease Research 11(4), pp. 19-25	0
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Coronary Artery Bypass Grafting (CABG) is a usual procedure to treat patients with coronary artery disease with relatively low mortality rates in best centers. The need for additional procedures further increases the risks. Objectives: The objectives of this study is to present our humble experience with such procedures, to alleviate both doctor and patients concern when needing such an intervention. Methods: This is a retrospective clinical case series study of patients admitted to Mosul center for cardiology and cardiac surgery from 13-5-2012 till 1-5-2016. Results: Off all patients referred for CABG, 13.4% needed an additional procedure including LV aneurysm repair, AVR, MVR, DVR and aortic aneurysm repair. Male to female ratio was 3.8:1, 89.6% of patients were in NYHA class 3, 37.9% of patients were diabetic, 65.5% had a reduced EF%, 65.5% had associated respiratory problems and 13.8% had renal impairment. 44.8% needed three coronary grafts, 27.6% needed two grafts, 20.7% needed a single graft and 6.9% needed four grafts. Our median aortic cross clamps was 68.1 min, and our median perfusion time was 113.6 min. Post-operative complications included arrhythmias in 44.8%, prolonged hospital stay in 34.5%, increased postoperative serum creatinine in 27.6%, prolonged mechanical ventilation in 17.2%, prolonged ICU stay in 17.2%, oliguria in 13.8%, low cardiac output in 6.9%, bleeding in 3.4%, with a mortality of 3.4%. Conclusion: CABG with additional procedures is a safe and common surgical condition with risks and complications comparable to that of CABG alone. More interest should be paid on patient and doctor education on the benefit of proper timing of surgery. And our surgical teams need further training and education to try and further shorten our operative time.

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| <input type="checkbox"/> | 422 | ASSESSMENT OF THE RISK FACTORS OF HELICOBACTER PYLORI INFECTION AMONG PATIENTS WITH COMPLAINTS OF GASTROINTESTINAL DISEASE IN DUHOK GOVERNORATE, IRAQ | Al-Khafaf, A.H.,<br>Altaii, H.A., Al-Rawi,<br>N.F., Hussein, N.R. | 2020 | Biochemical and Cellular Archives<br>20(2), pp. 5947-5952 | 1 |
|--------------------------|-----|---|---|------|---|---|

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Helicobacter pylori (H. pylori) infection remains one of the prevalent global infections, which is a significant reason for peptic ulcer disease and gastric cancer. The aim of study is to determine the incidence of infection by H. pylori in Duhok city, Iraq. It was investigated that age, sex and living situation plays an essential role in the infection by H. pylori, as well as some of the critical risk factors such as smoking, drinking alcohol, sources of contamination. Furthermore, investigation, there is a relationship between infection of H. pylori and another disease. The samples (serum) were isolated from the patient's blood, which elected according to persons they have gastrointestinal symptoms. ELISA test was applied to assess H. pylori infection. The results showed that 28.98% of cases were suffered by H.pylori infection, and 71.02% were negative. However, there is a statistically significant difference detected of the other risk factors, which was reported. Our data determined that H. pylori infection related to some risk factors such as age, gender and different habitats.

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<input type="checkbox"/>	423	Low noise amplifier (Lna) performance optimization using genetic algorithms (gas)	Younis, A.T., Abdo, E.A.	2020	Journal of Engineering Science and Technology 15(5), pp. 3122-3131	3
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Low Noise Amplifier (LNA) is used in most communication systems to amplify the weak received signal to an acceptable levels. Noise levels and power consumption are among the most important performances that have to be treated and improved. Genetic algorithm is realized and applied to improve these performances. As an application of LNA in Global Positioning System (GPS), a 1.5 GHz single ended inductive source degeneration LNA is presented as case study. Noise figure (NF) and power consumption are the main objective performances that applied and improved using GA. A reduced noise figure of (0.745 dB) and a reduced power consumption of (5.53mW) are obtained. The genetic algorithm is implemented in MATLAB environment, and the optimized resulted structures are simulated using Advance Design System (ADS) simulator using 0.18 um CMOS technology.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	424 Investigation and design of ion-implanted MOSFET based on (18 nm) channel length <i>Open Access</i>	Abdul-Kadir, F.N., Mohammad, K.K., Hashim, Y.	2020	Telkomnika (Telecommunication Computing Electronics and Control) 18(5), pp. 2635-2641	4

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The aim of this study is to investigate the characteristics of Si-MOSFET with 18 nm length of ion implemented channel. Technology computer aided design (TCAD) tool from Silvaco was used to simulate the MOSFET's designed structure in this research. The results indicate that the MOSFET with 18 nm channel length has cut-off frequency of 548 GHz and transconductance of 967  $\mu$ S, which are the most important factors in calculating the efficiency and improving the performance of the device. Also, it has threshold voltage of (-0.17 V) in addition obtaining a relatively small DIBL (55.11 mV/V). The subthreshold slope was in high value of 307.5 mV/dec. and this is one of the undesirable factors for the device results by short channel effect, but it does not reduce its performance and efficiency in general.

<input type="checkbox"/>	425 Balancing a Segway robot using LQR controller based on genetic and bacteria foraging optimization algorithms <i>Open Access</i>	Mohammed, I.K., Abdulla, A.I.	2020	Telkomnika (Telecommunication Computing Electronics and Control) 18(5), pp. 2642-2653	12
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A two-wheeled single seat Segway robot is a special kind of wheeled mobile robot, using it as a human transporter system needs applying a robust control system to overcome its inherent unstable problem. The mathematical model of the system dynamics is derived and then state space formulation for the system is presented to enable design state feedback controller scheme. In this research, an optimal control system based on linear quadratic regulator (LQR) technique is proposed to stabilize the mobile robot. The LQR controller is designed to control the position and yaw rotation of the two-wheeled vehicle. The proposed balancing robot system is validated by simulating the LQR using Matlab software. Two tuning methods, genetic algorithm (GA) and bacteria foraging optimization algorithm (BFOA) are used to obtain optimal values for controller parameters. A comparison between the performance of both controllers GA-LQR and BFO-LQR is achieved based on the standard control criteria which includes rise time, maximum overshoot, settling time and control input of the system. Simulation results suggest that the BFOA-LQR controller can be adopted to balance the Segway robot with minimal overshoot and oscillation frequency.

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- 426 Modification of irisin level in overweight/obese women during pregnancy and its association with some metabolic risk factors *Open Access* Hamza, M.A., AL-Tamer, Y.Y., AL-Habib, O.A.M. 2020 Baghdad Science Journal 17(3), pp. 1124-1132 2

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Irisin is a novel myokine and adipokine, its role during pregnancy and its association with some metabolic risk factors especially pre-pregnancy body mass index (pre-BMI) need more evaluation. The aim of the study is to find whether the pre-BMI could predict irisin levels during normal pregnancy and to clarify associations of irisin with some pathological parameters. Irisin levels were estimated by ELISA in sera of 59 normal pregnant women who enrolled from December 2016 to May 2017 at Maternity Hospital, Zakho city, Kurdistan region (Iraq). Thirty-two normal-weight pregnant (pre-BMI $\leq$ 24.9 kg/m<sup>2</sup>, Age=24.03 mean $\pm$ 3.7 standard deviation) and 27 overweight/obese-pregnant (pre-BMI $>$ 25 kg/m<sup>2</sup>, Age=27.6 mean $\pm$ 3.9 standard deviation) were accounted for each trimester as 10: 8 in first trimester, 10:10 in second trimester and 12:9 in third trimester respectively. Twenty-two healthy married non-pregnant women of reproductive age served as controls, accounted as 10 normal-weight women (BMI  $\leq$ 24.9 kg/m<sup>2</sup>) and 12 overweight/obese women (BMI $>$ 25 kg/m<sup>2</sup>). In pregnant women as a whole, irisin level significantly increased compared to control (p=0.003), and correlated with the pre-BMI, FBS, TP and HOMA2-IR. Pre-BMI and TP predicted irisin levels in a whole study population (p=0.011 and 0.014 respectively). In Overweight/Obese-pregnant, irisin increased significantly by 55.3% in first trimester compared with Overweight/Obese women control, then decreased progressively toward the end of gestation, correlated with TP, Albumin, FBS, HOMA2-IR and negatively correlated with gestational weight gained. TP and FBS independently predicted irisin level in Overweight/Obese-pregnant group. Conclusion: Circulating irisin levels are influenced by pre-BMI, and both of TP and FBS predict irisin levels in overweight/obese pregnant. Irisin level should be a radical factor in future studies for pathological conditions linked to hypoproteinemias such as edema and hepatic disease.

<input type="checkbox"/>	427	Methyltetrahydrofolate reductase (MTHFR) mutations in healthy individuals in Ninavah Province, Iraq	AL-Dewachi, S.O., Kashmoola, M.A.	2020	Annals of Tropical Medicine and Public Health 23(13B),231370	1
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Methyltetrahydrofolate reductase (MTHFR) is an enzyme encoded by the MTHFR gene, it plays an important role in homocysteine metabolism, and so genetic mutations of this enzyme cause a reduction in enzymatic activity and hyperhomocysteinemia. One of the most common MTHFR gene mutations is C677T. This study is aimed to determine the frequency distribution of (C677T) MTHFR mutation in healthy subjects from Ninawah Province -Iraq. The sample of this study includes 150 randomly selected apparently healthy subjects who are attending pre-marriage screening center in Mosul for routine pre-marriage checking. DNA was isolated from the blood samples of all subjects and investigation for MTHFR (C677T) gene polymorphism was done by the polymerase chain reaction (PCR) and restriction fragment length polymorphism (RFLP) of a genomic DNA fragment at nucleotide 677. The most frequently observed MTHFR genotype was Wild CC 65.3%, followed by Heterozygous CT 28.0%, and, Homozygous TT had the lowest frequency of 6.7%. No significant association was found between genotype and sex. In conclusion, we have defined the frequency distribution of (C677T) MTHFR gene mutation in the healthy subjects from Ninawah Province/Iraq. These results could be of help in genome association studies and in the clinical encounter.

<input type="checkbox"/>	428	Comparison of controller performance for UGV-landing platform self-leveling	Alghanim, M.N., Qasim, M., Valavanis, K.P., Rutherford, M.J., Stefanovic, M.	2020	2020 28th Mediterranean Conference on Control and Automation, MED 2020 9182837, pp. 471-478	6
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This paper focuses on a comparative study of linear, nonlinear and adaptive controller performance to level within  $1^\circ$  of the horizon - regardless of terrain configuration, i.e., rough, asphalt, off-road - a custom-built landing platform for quadrotors and small-scale helicopters to take-off and land. The landing platform is built on top of the commercially available Argo J5 Unmanned Ground Vehicle (UGV). A detailed and accurate landing platform model is first derived based on the Euler-Lagrange formulation. Then, PD, PID, LQR, feedback linearization and a Passivity Based Adaptive Controller (PBAC) are designed, tested and compared via extensive MATLAB/Simulink simulations and by using the V-REP Simulation Environment for further validation and evaluation of leveling capabilities under disturbance and disturbance-free conditions, where the disturbance torque is added to the controllers. The comparative study considers real Argo J5 and platform physical and functional constraints and limitations. Results show that the PD and PBAC achieve faster platform settling time under disturbance-free conditions, while the PBAC and LQR achieve leveling under external disturbances. Thus, it is concluded that the PBAC is the best candidate controller configuration. Obtained results also reveal platform design limitations that lead to improved UGV-platform configurations before actual experimentation and use.

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<input type="checkbox"/> 429	Passivity-based adaptive controller for dynamic self-leveling of a custom-built landing platform on top of a UGV	Alghanim, M.N., Qasim, M., Valavanis, K.P., Rutherford, M.J., Stefanovic, M.	2020	2020 28th Mediterranean Conference on Control and Automation, MED 2020 9182807, pp. 458-464	3
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A Passivity-Based Adaptive Controller (PBAC) is derived and tested for the integrated Argo J5 Skid Steering Mobile Robot (SSMR) and custom-built landing platform. The twofold aim is to demonstrate landing platform dynamic self-leveling accuracy, coupled with accurate Argo J5 trajectory tracking in rough and uneven terrains. The overall system dynamic model based on Euler-Lagrange and Terramechanics theory is summarized, followed by derivation of the PBAC. Performance is first tested/evaluated in a MATLAB/Simulink environment using actual/experimentally identified Argo J5-landing platform physical parameter values and constraints. Results are, then, verified/validated using the V-REP Simulation Package. Different terrain slope angles, different platform initial angles, and different realistic Argo J5 velocities are used in all studies. It is observed that dynamic self-leveling is achievable for Argo J5 slow velocities and small slope terrain angles. Results also reveal current design limitations that need to be overcome before actual testing.

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<input type="checkbox"/>	430	Design and implementation of positioning and control systems for capsule endoscopes <i>Open Access</i>	Mohammed, I.K., Sharif, B.S., Neasham, J.A.	2020	IET Science, Measurement and Technology 14(7), pp. 745-754	1
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Wireless capsule endoscope (WCE) is a new diagnostic device that can be utilised for evaluating the whole digestive tract if effectively actuated. In this research, a new one degree of freedom (1DOF) actuation system based on a magnetic levitation concept is proposed for the capsule endoscope navigation system. The proposed system is used to move a permanent magnet inserted in WCE body by an arrangement of the current controlled electromagnetic actuator placed on a 3DOF movable frame. The aim of this study is to design a proportional-integral-derivative (PID) controller to suspend the capsule and keep it at a demand test region. DC and AC magnetic field-based positioning systems using the Hall effect sensor and the coil sensor, respectively are used to provide the controller by capsule position feedback. Improvement of the position feedback accuracy based on AC magnetic field using discrete Fourier transform is presented. Realistic simulation design of the system is implemented using Matlab/Simulink environment to validate the PID controller. The navigation scheme is implemented practically utilizing digital signal processor to verify the effectiveness of the controller. Finally, simulation and experimental results of the capsule navigation system are presented to show the performance of the proposed controller.

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<input type="checkbox"/>	431	A compact design of hexa-band frequency reconfigurable antenna	Younus, K.M.	2020	International Journal of Microwave and Optical Technology 15(5), pp. 425-432	1
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This paper presents a novel shape with Hexa-band tunable frequency-reconfigurable antenna with a compact size of (16x23x1.6 mm<sup>3</sup>). The antenna operates in quad operation modes, two modes of them give double operation bands. The altering between the bands can be achieved by turning properly mounted PIN-Diodes switches (PDs) between (1=ON or 0=OFF) states. The frequency bands are allocated for wireless applications. The six bands are; Global Positioning System (GPS) at (1575-1665 MHz), the universal mobile telecommunication systems (4G-LTE) (1.7 and 2.10 GHz), Wireless-Area-Network (WLAN) (2.45 GHz and 5 GHz) and WiMAX (3.5 GHz). The proposed antenna consists of a radiating element that has a semi-square shape mounted on the antenna-face side and fed by a microstrip feeding line. The back-face side is a truncated metallic ground surface. The antenna has been designed and simulated by the simulation program (CST-MWS). The proposed antenna is optimally matched the Reflection Coefficient (S11) < -10 dB and works with efficiency < 85% and antenna with gain ranged from 4.1 dB to 5.9 dB. To validate the simulation results, a prototype has been fabricated and tested. Reasonable agreements between the simulated and measured parameters have been found. The results have been compared with the related Multi-band antennas with six operation bands. The novelty in the presented antenna is that the antenna has the smallest physical size and has improved performance compared with related Hexa-bands antennas.

<input type="checkbox"/>	432	Design of Multi-band Slotted mmWave Antenna for 5G Mobile Applications <i>Open Access</i>	Almashhdany, M.B., Al-Ani, O.A., Sabaawi, A.M.A., (...), Hussein, N.J., Abdelreda, F.A.H.	2020	IOP Conference Series: Materials Science and Engineering 881(1),012150	9
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In this paper, the design of a compact microstrip patch antenna for the 5G communication is proposed. The proposed antenna has a compact structure of 10x10x0.245 mm<sup>3</sup> including the ground plane. The operating frequency for the antenna is in the 30 GHz band, which covers the 5G proposed band regarding the signal speed and data transmission, as well as the high spectral efficiencies. By using CST software, the analysis and performance of the antenna on a FR-4 dielectric substrate has been presented. Simulations show that the reflection coefficient of all operating frequencies is below -14 dB, which met the requirements of future 5G applications. In this work, the geometry of the presented antenna and its related parameters such as S-parameters and radiation pattern plots as well as gain values are presented and discussed in detail.

<input type="checkbox"/>	433	Efficient noisy sound-event mixture classification using adaptive-sparse complex-valued matrix factorization and ovso svm <i>Open Access</i>	Parathai, P., Tengtrairat, N., Woo, W.L., (...), Rafiee, G., Alshabrawy, O.	2020	Sensors (Switzerland) 20(16),4368, pp. 1-23	8
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This paper proposes a solution for events classification from a sole noisy mixture that consist of two major steps: a sound-event separation and a sound-event classification. The traditional complex nonnegative matrix factorization (CMF) is extended by cooperation with the optimal adaptive L1 sparsity to decompose a noisy single-channel mixture. The proposed adaptive L1 sparsity CMF algorithm encodes the spectra pattern and estimates the phase of the original signals in time-frequency representation. Their features enhance the temporal decomposition process efficiently. The support vector machine (SVM) based one versus one (OvsO) strategy was applied with a mean supervector to categorize the demixed sound into the matching sound-event class. The first step of the multi-class MSVM method is to segment the separated signal into blocks by sliding demixed signals, then encoding the three features of each block. Mel frequency cepstral coefficients, short-time energy, and short-time zero-crossing rate are learned with multi sound-event classes by the SVM based OvsO method. The mean supervector is encoded from the obtained features. The proposed method has been evaluated with both separation and classification scenarios using real-world single recorded signals and compared with the state-of-the-art separation method. Experimental results confirmed that the proposed method outperformed the state-of-the-art methods.

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<input type="checkbox"/>	434	Performance Improvement of 18-bit $\Sigma\Delta$ A/D Convertor	Hassan, R.S., Yonis, A.Z., Mohammed, K.K.	2020	2020 9th IEEE Integrated STEM Education Conference, ISEC 2020 9280584	0
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The research paper presents a simulation study to develop and improve the overall performance of sigma delta ( $\Sigma\Delta$ )A/D modulator, the circuit structure and technique used were explained and the processes of different parameters of  $\Sigma\Delta$  modulator over the conventional modulator were explained clearly. Simulated results of the proposed  $\Sigma\Delta$  system shows a good improvement in the spurious noise produced by the conventional A/D converter.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	435 End-to-end performance of a 4/16-QAM hierarchical modulation scheme over rician fading channels	Awany, S.N., Jebur, B.A., Tsimenidis, C.C., Chambers, J.	2020	IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, PIMRC 2020-August,9217323	5

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In this paper, we derive an analytical expression for the average symbol error rate for the 4/16-QAM hierarchical modulation (HM), of the mapped signal at the relay during the up-link phase, for the HP and LP streams, respectively, in Rician fading environments. Furthermore, by utilizing HM for the proposed HM-PLNC system, we minimize the computational complexity at the relay node by reducing the number of Euclidean distance computations (EDCs) to 32 EDCs in fading channels. Performance evaluations show that the proposed system can significantly enhance E2E throughput for the TWRN systems compared to an equivalent 16-QAM based PLNC system. The results present a closed-form solution for HP and LP streams over slow, flat, Rician fading channels.

<input type="checkbox"/>	436 End-to-end performance analysis of full-duplex AF-UAV relay networks: Tight-lower bound ASER	Jebur, B.A., Awany, S.N., Alkassar, S.H., Tsimenidis, C.C.	2020	IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, PIMRC 2020-August,9217262	2
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The unmanned aerial vehicles (UAVs) have attracted much attention in modern wireless communication as an effective solution to improve the coverage in the wireless communication networks. In particular, UAVs have been employed as relay nodes to provide low latency and high data rate connection, especially during disasters, where the existing communication networks are damaged. This paper investigates the end-to-end (E2E) performance of a UAV-aided full-duplex (FD) bi-directional relay network in the presence of the residual loop-interference (LI). First, A closed-form expression for the cumulative distribution function (CDF) of the E2E signal-to- interference-and-noise ratio (SINR) is derived and presented in this work. Next, we introduce a closed-form expression for the E2E average symbol error rate (ASER), which is validated using Monte Carlo simulations. Then, this ASER expression is utilized to evaluate the E2E performance of the FD-UAV- assisted bi-directional network in the presence of the residual LI. The evaluated performance gives the network designers a clear comprehension of the impact of the residual LI on the E2E performance of the investigated network.

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<input type="checkbox"/>	437	The impact of toxoplasma gondii infection on the serum zinc, Vitamin D and malondialdehyde levels among recurrent miscarriage women in babylon province-Iraq	Al-Masoudi, H.K., Khadhm, A., AL-Karaawy, F.H.	2020	Systematic Reviews in Pharmacy 11(7), pp. 443-449	0
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Toxoplasma gondii (T. gondii) is an obligate intracellular protozoan parasite causing toxoplasmosis in animals and humans. It causes serious problems to the pregnant women that lead to incidence an abortion. Essential vitamins and minerals (for example vitamin D and zinc metals) are support maternal health and fetal development throughout gestation through processes that are integrated across maternal, placental and fetal compartments. This study was aimed to investigate the alterations in the levels of vitamins D, element Zn and MDA in the sera of women with toxoplasmosis with a history of recurrent miscarriage, and compare them with the results of age matched healthy volunteers as control group. Sixty patients with positive anti-T gondii (IgG) antibodies and 28 healthy individuals were included in this study. The levels of serum Zn was measured by Atomic absorption spectrophotometry Systems, while serum vitamin D and MDA concentrations were measured by using enzyme-linked immunoassay (ELISA) technique. The level of serum zinc significantly decrease in women with age (34-43years ) it was (37.73 µg/dl ( in compare with control group, while level of Vitamin D was significantly decrease in women with age (24-33years ) it was (146.3ng/mL). The present study also confirms that level of Malondialdehyde (MDA) in miscarriage women was slighty increase (183.249 ± 83.169ng/mL) in compare with control group (162.678±65.589 ng/mL) respectively in age group 24-33years. In conclusion, the results indicated that the levels of antioxidant vitamins, zinc and MDA may have an important role to increase possibility of exposure to toxoplasmosis in women.

<input type="checkbox"/>	438	Survival rate and mortality causes in patients with $\beta$ -thalassemia major in Nineveh Governorate, Iraq	Al-Hafidh, N.M., Younis, M.S., Tae, K.F.A.L.	2020	Pakistan Journal of Medical and Health Sciences 14(3), pp. 1274-1277	1
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Background: B-thalassemia a common hematological disorder in Nineveh Governorate; however, survival status was not formerly assessed. Aim: To determine the survival rate and causes of death in patients with  $\beta$ -thalassemia major in Nineveh Governorate. Iraq. Methods: This is a retrospective study involving 718 registered patients with  $\beta$ -thalassemia major in Ibn- Al Atheer center of thalassemia in Mosul city, northern of Iraq, during 17-year period from 1997 to 2014. Each patient was studied from the date of birth to the date of terminal follow-up of this study at 31/12/2014. Documented demographic, clinical and laboratory data were extracted from patients' medical records. Statistical analysis performed using Kaplan-Meier method to analyze survivals. Results: There were 160(22.3%) deaths among locally registered patients with  $\beta$ -thalassemia major, 130 (81.4%) of them were due to cardiac causes. The median survival time was 16.15 year. Kaplan-Meier survival curves of enrolled patients showed that 5-, 10-, 15-, 20-,25-,30-,35, 40-,45-year survival rate was 98.7%, 95.1%, 81.6%, 61.6%,49.8% 44.4%, 42.2%.42.1% and 36.9% respectively. Conclusions: At age of 25 years, 49.8% of local thalassemia patients survived. Heart disease was the most common cause of death among studied patients with  $\beta$ -thalassemia major.

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<input type="checkbox"/>	439	The role of helicobacter pylori in gastric cancer: A review	Hachim, S.K., Ali, A.S.	2020	Biomedicine (India) 40(3), pp. 267-271	1
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Gastric cancer is considered the third most common causes of mortality related with cancer in world. Gastric cancer has been classified as a class I carcinogen by World health organization. Investigation proposed that carcinogenic effect of Helicobacter infection can occurred through different mechanisms, one of these mechanism through indirect inflammatory on the gastric mucosa during Helicobacter pylori infection in addition to the direct epigenetic effects of H. pylori on gastric cells. The development of gastric cancer depends on the combination of environmental and host depend factors in cooperation with Helicobacter pylori infection. There is a role for eradication of the H. pylori infections on the prevention the gastric lesions, which lead to atrophic gastritis. The aim of this review is to focus on the role of H. pylori infection in the development of gastric cancer, which helps physician in the best way to identify infected individual who is at high risk to affect with gastric cancer and achievement necessary investigation as well as treatment.

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<input type="checkbox"/>	440	The meatal mobilization (MEMO) technique for distal primary and recurrent hypospadias	Ismail, O., Mohammed, N.H., Salim, M.J.	2020	Pakistan Journal of Medical and Health Sciences 14(3), pp. 1318-1321	0
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Background: Hypospadias is one of the most common congenital anomalies of the male genito-urinary system. Hypospadias repair aims to provide excellent functional and cosmetic results. Urethral mobilization and advancement of the native urethra are considered a useful technique for distal hypospadias. Aim: To report our results in urethral mobilization and advancement in distal hypospadias management. Methods: A total of 76 patients with distal hypospadias were treated with meatal mobilization and advancement techniques during the study period between June 2015 and June 2019 in Al-Jadryia private hospital in Baghdad. A description of the technique and postoperative results recorded. Results: A total of 76 patients included in this study, 69 had primary distal hypospadias, and seven patients previously failed distal hypospadias repair. The mean age at the time of operation was 20 months, and the mean operation time was 70 minutes. The only intraoperative complication was a urethral injury, which occurred in 5 patients. Postoperative hematoma developed in 4 patients, and three patients had a wound infection, and six patients had postoperative edema. However, all of them responded to conservative treatment. Urethrocutaneous fistula developed in 5 patients, the revision was needed in all of them. Meatal stenosis occurred in 4 patients; two of them responded well to gentle urethral dilatation, whereas the remaining 2 required meatotomy under general anesthesia. Meatal retraction, and mild residual chordee, were developed in 2, and 2 cases, respectively, and no further operative intervention was needed in the four patients. In all patients, the catheter was removed on the 5th postoperative day. The overall success rate was (93.4%). Conclusion: Urethral mobilization technique resulted in excellent cosmetic and functional outcomes with a low complication rate. It is suitable for patients with distal hypospadias, including patients requiring redo urethroplasty. It has a low chance of urethrocutaneous fistula, especially in primary cases with low postoperative complications.

<input type="checkbox"/>	441	Multi-branch transmitter for indoor visible light communication systems <i>Open Access</i>	Younus, S.H., Al-Hameed, A.A., Hussein, A.T., Alresheedi, M.T., Elmirghani, J.M.H.	2020	International Conference on Transparent Optical Networks 2020-July,9203038	7
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One of the main aims of indoor visible light communication (VLC) systems is to deliver a high data rate service. A key obstacle is the ability of the indoor VLC channel to support high data rates. Here, we assess the potential of a multi-branch transmitter (MBT) and its use to achieve higher data rates in indoor VLC systems. The performance of the MBT is examined with a wide field of view (W-FOV) receiver and an angle diversity receiver (ADR). The effect of diffuse reflections, mobility and lighting constraints are considered while using on-off-keying (OOK). The results show that the proposed VLC systems offer a data rate of 4 Gb/s and 10 G b/s when using W-FOV receiver and ADR, respectively.

<input type="checkbox"/>	442	Massive MIMO for indoor VLC systems	Younus, S.H., Al-Hameed, A.A., Alhartomi, M., Hussein, A.T.	2020	International Conference on Transparent Optical Networks 2020-July,9203471	6
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Visible light communication (VLC) systems are typically operating at low data rates (hundreds of Mb/s up to 1 Gb/s). Operation at higher data rates can be feasible for VLC systems by implementing massive multiple-input and multiple-output (MIMO) techniques. The proposed VLC systems consists of multiple luminaires powered by light emitting diodes (LEDs) which are acting as transmitters and optical imaging receiver that includes massive number of separated multiple photodetectors. The massive MIMO-VLC system employs a space division multiple access (SDMA) to support multi-users in addition to the increase the data rate of a single user and improve the received signal to noise ratio (SNR) through use the spatial multiplying (SM), maximal ratio combining (MRC) and transmit/receive diversity (TxD, RxD) techniques, respectively. The result show that our massive MIMO-VLC systems able to work at a high data rate of 4 Gb/s for a single user scenario while considering the effect of mobility and diffuse reflections. In addition, the results show that our proposed system able to work at a high data rate of 1.5 Gb/s for multi-user scenario in presence of the multi-user interfere (MUI).

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	443 Modeling the dependence of the negative corona current density on applied voltage rise time	Saleh, D.N., Algwari, Q.T., Amouri, F.K.	2020	Physics of Plasmas 27(7),073501	5

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In this paper, a numerical simulation is used to investigate the influence of applied voltage rise time on negative corona current characteristics in SF<sub>6</sub> at atmospheric pressure. There were 23 particle species and 67 kinds of reactions considered in plasma chemical reactions. The influence of different rise times of the applied voltage is investigated. The spatial distributions of the radial electric field and total density of electrons and positive and negative ions, at and after the inception time of the corona current pulse, are used to explain the role of the rise time of the applied voltage on the mechanism of corona current pulse formation. It is found that the corona inception time, inception voltage, peak value of current pulse, number of sub-current pulses, and the time between the sub-pulses are strongly affected by the movement of negative ion clouds produced by the attachment. The quantitative analysis of the negative ions shows that the light ions preceded the heavy ions in their motion far away from the cathode and that this motion is governed by the rise time of the applied voltage.

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<input type="checkbox"/>	444 Complexity reduction of slantlet transform structure based on the multiplierless realization	Jasim, A.M., Abd, H.M., Abdul-Jabbar, J.M.	2020	Journal of Engineering Science and Technology 15(3), pp. 1705-1718	2
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The Slantlet transform (SLT) is a set of parallel filters, which are originally an orthogonal discrete wavelet transform (DWT). The SLT is recently a method to improve some properties of DWT, such as time localization. In this paper, a complexity reduction of SLT is proposed by reducing the mathematical computations of SLT filters based on the method of sum-of-powers-of-two (SOPOT) representation. Modifications of all coefficients of SLT filters can result in a multiplierless realization. The original and the modified magnitude and phase responses of the SLT filters are plotted. Moreover, the maximum and average errors in magnitude and phase responses between the original and modified filters are evaluated. The ECG signal is used as a case of study. The mean square error (MSE) value and the percent root mean square difference (PRD) are used as tools to refer to the amount of similarity. Furthermore, it is noteworthy that these error values are very small between the original and modified filters. Consequently, the new realization leads to a less-complex realization of the Slantlet transform with very small errors.

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<input type="checkbox"/>	445	On the design and optimization of CMOS active inductor for RF applications	Abdo, E.A., Younis, A.T.	2020	Journal of Engineering Science and Technology 15(3), pp. 1921-1933	3
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A design and optimization of an active inductor (AI) for a 2.4 GHz RF application is presented in this paper. A Genetic Algorithm (GA) optimization technique is realized and applied to improve the active inductor performances. The active inductor performance parameters concerned include inductance value range, quality factor, device dimensions, and required power consumption. Different fitness functions are formulated and used in a multi-objective function fashion using MATLAB environment. It is shown the use of inductance-quality factor product (LQ) in fitness function formulation provides a significant increase in inductance value range and improve quality factor (LQ = 68.6), as well as reduction in power consumption ( $P = 0.453$  mW).

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	446 Modeling and simulation of SEPIC controlled converter using PID controller <i>Open Access</i>	Khather, S.I., Ibrahim, M.A.	2020	International Journal of Power Electronics and Drive Systems 11(2), pp. 833-843	16

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The topology of SEPIC "Single-ended primary inductance converter" is considered as a suitable option for automotive power system where the value of the output voltage should be ranging between the low and high values of the input value of voltage. The main feature of the DC-DC converter is the stability of output voltage. This paper shows the SEPIC converter employing PID converter to be used in industrial applications. A SEPIC DC-DC converter can manage either step-down mode or step-up mode. The benefit of using this circuit is to supply a stable and controlled output voltage no matter how much the input voltage is. The simulated behaviors of the uncontrolled and controlled SEPIC converter are presented in this paper. The PID controller based on bat algorithm (BA) optimization method is used for searching of the best Proportional–Integral–Derivative (PID) gains. The solution has given very good performance and whatever the output reference voltage variation and load disturbance of the system.

<input type="checkbox"/>	447 Molecular detection of high-risk human papillomavirus genotypes from cervical lesions in Baghdad <i>Open Access</i>	Hachim, S.K., Ali, A.S., Al-Malkey, M.K.	2020	Annals of Tropical Medicine and Public Health 23(9),SP23916	2
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Objective: Using two complementary techniques of virus detection human papillomavirus (HPV) [capture of hybrids (CH) and polymerase chain reaction (PCR)], relate the cytological study and/or cervical biopsy with high-risk HPV (HPV-HR) genotypes presence, as well as relating their viral load (VL). Methods: About 272 women, who presented most cell alterations compatible with lesions cervical HPV, which has been detected in all high risk by the CH method and HPV genotype detection by PCR. Results: In 22% of the patients it was not detected HPV DNA. Genotype 16 and/or 18 was prevalent and was found in 33% of the 212 women studied, meanwhile, mixed infections were found by several genotypes in 25%. In as for the histological lesions found, in 61 patients with squamous intraepithelial lesions of high grade (H-SIL) and cancer, 55.73% presented genotypes 16 and/or 18, while in 38 patients with presence of altered squamous cells of significance uncertain (ASCUS) and 126 with squamous lesions low-grade intraepithelial (L-SIL), were put on manifest these genotypes only in 7.9% and 22.2%, respectively ( $p < 0.05$ ). About 12.13% of the 272 patients had a VL  $< 3$  pg/ml. In those with an HPV VL  $> 3$  pg/ml, were HPV-AR found in 77.40% of these ( $p < 0.05$ ). Conclusions In patients with H-SIL biopsy revealed genotypes 16 and/or 18. The CH2 technique is useful as a screening procedure, while PCR is interesting to identify HPV-HR genotypes.

<input type="checkbox"/>	448	High ambient temperature increases the toxicity and lethality of 3,4-methylenedioxymethamphetamine and methcathinone <i>Open Access</i>	Chen, Y., Tran, H.T.N., Saber, Y.H., Hall, F.S.	2020	Pharmacology Biochemistry and Behavior 192,172912	10
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Rationale: Methylenedioxymethamphetamine (MDMA) and methcathinone (MCAT) are abused psychostimulant drugs that produce adverse effects in human users that include hepatotoxicity and death. Recent work has suggested a connection between hepatotoxicity, elevations in plasma ammonia, and brain glutamate function for methamphetamine (METH)-induced neurotoxicity. Objectives: These experiments investigated the effect of ambient temperature on the toxicity and lethality produced by MDMA and MCAT in mice, and whether these effects might involve similar mechanisms to those described for METH neurotoxicity. Results: Under low (room temperature) ambient temperature conditions, MDMA induced hepatotoxicity, elevated plasma ammonia levels, and induced lethality. Under the same conditions, even a very high dose of MCAT produced limited toxic or lethal effects. High ambient temperature conditions potentiated the toxic and lethal effects of both MDMA and MCAT. Conclusion: These studies suggest that hepatotoxicity, plasma ammonia, and brain glutamate function are involved in MDMA-induced lethality, as has been shown for METH neurotoxicity. The toxicity and lethality of both MDMA and MCAT were potentiated by high ambient temperatures. Although an initial mouse study reported that several cathinones were much less toxic than METH or MDMA, the present results suggest that it will be essential to assess the potential dangers posed by these drugs under high ambient temperatures.

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<input type="checkbox"/>	449	Salp Swarm Algorithm-Based Nonlinear Robust Control of Magnetic Levitation System Using Feedback Linearization Approach	Ismael, O.Y., Qasim, M., Noaman, M.N., Kurniawan, A.	2020	ACM International Conference Proceeding Series pp. 58-64	4
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This paper presents a robust nonlinear controller design for a magnetic levitation system (MLS). The feedback linearization method is utilized to transform the nonlinear model of MLS into the controller form. The controller is then designed and its parameters are optimized by the Salp Swarm Algorithm (SSA). Extensive MATLAB simulations are performed to evaluate the performance of the proposed controller as well as to compare it with PID and LQR controllers which are optimized by the SSA as well. Obtained results demonstrate that the proposed controller successfully tracks different kinds of reference signals (step, sine, and square) even in the presence of the system parameter perturbations and outperforms the PID and LQR controllers.

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<input type="checkbox"/>	450	Speaker Verification Using Cosine Distance Scoring with i-vector Approach	Al-Kaltakchi, M.T.S., Al-Nima, R.R.O., Alfathe, M., Abdullah, M.A.M.	2020	Proceedings of the 2020 International Conference on Computer Science and Software Engineering, CSASE 2020 9142088, pp. 157-161	2
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In this paper, a robust yet simple speaker verification system is implemented. The speaker verification system is investigated employing the i-vector approach with the Cosine Distance Scoring (CDS) for system classification. In addition, to measure the system performance, Equal Error Rate (EER), Detection Error Trade-off (DET) Curve, Receiver Operating Characteristic (ROC) curve as well as Detection Cost Function (DCF) were utilized. Experimental results are conducted on the TMIT database using 64 randomly selected speakers. The proposed system utilizes the Mel Frequency Cepstral Coefficients (MFCC) and Power Normalized Cepstral Coefficients (PNCC) for feature extraction. In addition, features normalization methods such as Feature Warping (FW) and Cepstral Mean-Variance Normalization (CMVN) are used in order to mitigate channel effect noise. The speakers are modeled with the i-vector while CDS is used for classification. Experimental results demonstrate that the proposed system achieved promising results while being computationally efficient.

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<input type="checkbox"/>	451	Immunohistochemical expression of BRCA1 protein, ER, PR and Her2/neu in breast cancer: A clinicopathological study <i>Open Access</i>	Hussein, I.A., Ahmed, S.T., Hameedi, A.D., (...), Alkhaytt, M., Pity, I.S.	2020	Asian Pacific Journal of Cancer Prevention 21(4), pp. 1025-1029	11
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Breast cancer is a heterogeneous hormone-dependent disease. Potential prognosis depends on the clinicopathological evaluation and assessment of other prognostic indicators. The detection of the oestrogen Receptor (ER), Progesterone Receptor (PR), Human epidermal growth factor receptor 2 (Her2/neu) and BRCA1 oncoprotein is pivotal for prognostic evaluation and to choose the appropriate post-surgical adjuvant therapy beside selecting the proper candidate for genetic counselling. Objectives: To detect the immunoexpression of the BRCA1 oncoprotein in mammary invasive ductal carcinoma and its association with the prognostic markers (ER, PR and Her2/neu hormonal receptors) and other clinicopathological parameters to improve the patients' treatment plans. Methods: A cross-sectional study design including 83 paraffin blocks and histological slides collected from Al-Jumhoori Medical City Teaching Hospital Laboratory in Mosul and the Central Public Health Laboratory in Baghdad between the 1st of January 2010 to the 13th of March 2012 for patients diagnosed with primary invasive ductal breast carcinomas. Immunohistochemistry (IHC) using monoclonal antibodies against ER, PR, Her2/neu receptors and BRCA1 protein was performed via the fully automated immunostaining instrument 'Ventana Benchmark'. Results: BRCA1 protein immunoexpression was detected in 20.5% of cases. It was significantly high with increasing tumour grade and stage. Although there was a trend of BRCA1 negativity toward negative ER, PR and Her2 receptors, no significant associations were observed with any of these parameters and the patients' age. Conclusion: Altered BRCA1 expression is significantly associated with advanced tumour grade and stage. High number of cases with negative BRCA1 expression showed negative ER, PR and Her2/neu expression.

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| <input type="checkbox"/> | 452 | Performance analysis of NOMA systems over Rayleigh fading channels with successive interference cancellation<br><i>Open Access</i> | Ahmed, M.A., Baz, A., Tsimenidis, C.C. | 2020 | IET Communications 14(6), pp. 1065-1072 | 23 |
|--------------------------|-----|--|--|------|---|----|

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In this study, non-orthogonal multiple access (NOMA) is considered for multiusers wireless communications over Rayleigh fading channel. The base station (BS) utilises NOMA technique to secure connectivity, users fairness and high spectralefficiency for multiusers with different channel conditions. Moreover, a power allocation mechanism is applied at the BS by giving each user its required power allocation factor (PAF) in order to share the available power. Therefore, this technique allowsthe users of interest to communicate with the BS over the same frequency band simultaneously in the power domain. Moreover, successive interference cancellation is applied for users with the lower PAF to remove the strong signal of the other users. Furthermore, exact expressions are derived for different performance metrics, and the probability density function of the signalto-interference-plus-noise ratio is derived at each terminal and then exploited to obtain the outage probability and the probabilityof error. The performance analysis is verified via Monte-Carlo simulations demonstrating closed-match with theoretical analysis.

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<input type="checkbox"/>	453	Efficient and Low-Cost Arduino based Solar Tracking System <i>Open Access</i>	Awad, S.R., Al Jbaar, M.A., Abdullah, M.A.M.	2020	IOP Conference Series: Materials Science and Engineering 745(1),012016	2
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Sun energy plays an important role as a primary source of energy which can be harvested successfully using solar cells. The solar cell efficiency depends on the location of sun and its light intensity. Hence, solar tracking can be exploited to maximize the efficiency of solar panel. In this work, we developed a novel system of an inexpensive automatic microcontroller-based scaled down solar tracker using Arduino platform. Servo-motor is controlled by an Arduino Mega unit in order to re-orient the solar panel according to the position of sun with the help of light dependent resistors (LDR) and servomotors. A dual-axis solar tracker prototype is designed to maximize the harvested solar energy. Experimental results show that the proposed system performs 25% better than a fixed solar panel under the same conditions.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	454 Proposed APs Distribution Optimization Algorithm: Aware of Interference (APD-AI) <i>Open Access</i>	Mohammed, R.A., Salim, O.N.M., Al-Nakkash, A.H., Alabdullah, A.A.S.	2020	IOP Conference Series: Materials Science and Engineering 745(1),012040	3

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Indoor networks became the focus of attention of many researchers due to its important role to connect to the wide networks. Many algorithms have been applied or proposed to maximize the coverage of indoor networks. In this paper, a multi-objective algorithm has been introduced to optimize the coverage and maximize the Signal-to-Interference Ratio (SIR) based on Binary Particle Swarm Optimization (BPSO) using Matlab software. It has been applied to the installed network which is consist of four AP with a heterogeneous distribution. It has been evaluated the optimized network and proves its reliability. The results obtained show the flexibility and efficiency of the proposed algorithm which produce an optimal network maximizes the coverage area and enhances the SIR by 9.03 dB.

<input type="checkbox"/>	455 Role of rosmarinus officinalis phenolic compounds in treatment of entamoeba histolytica infection	Jassim, A.F., Al-Adilee, Y.M.S., Mustafa, A.A.	2020	Annals of Tropical Medicine and Public Health 23(5), pp. S298-S303	0
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The present study was designed to detect role of phenolic compounds against the *E. histolytica*. The study used 20 adult male rats that distributed to four groups (each group consist 5 rats); control group that received normal saline, second group rat administrated with *E. histolytica* at dose 103cyst/ml. third group rat administrated with *E. histolytica* at dose 103cyst/ml and treated with 50ug/ml of phenolic compounds for four weeks. Fourth group rat administrated with *E. histolytica* at dose 103cyst/ml and treated with 100ug/ml of phenolic compounds for four weeks. The results show high significant increased ( $P < 0.05$ ) in levels AST, ALT and MDA with high significant decreased ( $P < 0.05$ ) in levels of catalase in second group compared with control group. The results of third and fourth groups show non-significant changes ( $P < 0.05$ ) in all parameters compare with control group when using phenolic compounds. About the histological changes, second group show degeneration of hepatocytes with thickening wall of central vein and infiltration of mononucleated inflammatory. After treatment by using phenolic compounds, tissues of liver appear semi-normal in third and fourth groups. It was concluded that phenolic compounds has arole against *E. histolytica*.

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<input type="checkbox"/>	456	Array pattern reconfiguration using pixel method	Younus, K.M., Mohammed, J.R.	2020	Applied Computational Electromagnetics Society Journal 35(3), pp. 273-278	2
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In this paper, the array elements are considered as pixels and their magnitude excitations are assigned to the values of 1 (i.e., active or turned ON) or 0 (i.e., inactive or turned OFF). Thus, each element either exists at its position in the considered array or not. The proposed pixel method can be applied to different planar array configurations such as square, rectangular, triangular, circular, or any other shape to achieve the required pattern reconfigurability. Moreover, by turning OFF some of the selected elements, the main beam of the array pattern can be switched to specify directions without using any phase shifters or any other RF components. Therefore, its practical implementation is simpler and cheaper than any other existing method. However, when comparing with arrays in which all their elements are turned ON, the gain of the considered arrays will be reduced when some selected elements are turned OFF. The array pattern reconfiguration using the pixel method has been designed and its parameters have been optimized using computer simulation Technology (CST-MWS), which uses the Finite Integration Technique (FIT). It's also verified by High-Frequency Surface Structure (HFSS) commercial software (based on the FEM method). Numerical results obtained under full-wave modeling CST environment demonstrate the effectiveness of the described method.

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<input type="checkbox"/>	457	Internet of things security assessment in healthcare environment	Ali, D.M., Mahmoud, A.S.	2020	2019 International Conference on Advances in the Emerging Computing Technologies, AECT 2019 9194216	3
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This paper deals with a new generation of the Internet devices which is named Internet of Things (IoT) concerning the health care environment. IoT allows understanding the interconnected devices among them, including gadgets and sensors... etc. Security assessment and security gaps treatment in the healthcare environment is also tackled through the use of secure routing protocol (SecRout) for the protection of wireless sensor networks (WSN) during different types of attacks and security risks. Symmetric encryption is used in SecRout to confirm the validity of the messages and a small cache in each nodes used to record the route of the partial routing (the previous and subsequent nodes) and it ensures that the destination is able to identify or ignore the frivolous messages. Finally, SecRout protocol performance is compared with the performance of unsecured AODV protocol..

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<input type="checkbox"/>	458	Mutual coupling reduction of dual-band uni-planar MIMO system using neutralization line technique	Saleh, A.M., Nagim, T.A., Abd-Alhameed, R.A., Noras, J.M., See, C.H.	2020	Applied Computational Electromagnetics Society Journal 35(2), pp. 167-175	7
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This paper presents a low-profile dual-band (2x2) MIMO antenna that works at 2.4GHz, 5.2GHz and 5.8GHz for wireless local area networks (WLAN) applications. A neutralization line technique for enhancing the isolation is used by introducing a strip line with a length of  $\lambda g/4$  at the isolation frequency (2.4GHz) between the radiating elements. The overall dimensions of the proposed antenna are 36x33.5x1.6 mm<sup>3</sup>. The antenna is fabricated and tested to validate the simulation results. The practical results show fair agreements with the simulated outcomes. The antenna achieves impedance bandwidths from 2.15GHz to 2.52GHz and from 4.5GHz to 6.45GHz for reflection coefficient  $|S_{11}| < -10\text{dB}$ . On the other hand, the result of  $S_{21}$  for the two bands is better than -10dB and it has reached to -25dB around 2.4GHz and -35dB around 5.5GHz. The MIMO antenna performance characteristics are reported in terms of scattering parameters, envelope correlation coefficient (ECC), total active reflection coefficient (TARC), channel capacity loss (CCL), diversity gain (DG) and antenna radiation patterns. Analysis of these characteristics indicates that the design is appropriate for the WLAN.

<input type="checkbox"/>	459	A tri-band frequency reconfigurable slot antenna for wireless applications	Younus, K.M., Sayidmarie, K.H.	2020	Applied Computational Electromagnetics Society Journal 35(2), pp. 187-193	6
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With the increase in wireless services, the demand for antennas that can operate at more than one frequency has increased. This work proposes a slot antenna whose frequency of operation can be configured into three bands of 2.4 GHz, 5 GHz, and 3.5 GHz for the Wireless-Area-Network (WLAN) and Worldwide Interoperability for Microwave Access (WiMAX) applications. The switching between the three bands is achieved by two PIN diodes properly placed between the two sides of the slot. The antenna consists of a rectangular slot etched on the ground plane, while on the other side of the substrate, there is a microstrip line to feed the slot with an open stub for matching. The tri-band frequency reconfigurable slot antenna has been studied, and its parameters optimized using computer simulation Technology (CST-MWS). Parametric study on the slot dimensions and the microstrip feeding is presented. For verification of the simulation results, the antenna is fabricated and measured. The simulated and measured parameters such as return loss, radiation pattern, and gain show excellent agreement for the three operation bands.

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<input type="checkbox"/>	460	Influence of low power consumption on IEEE 802.15.4 in wireless networks performance <i>Open Access</i>	Yonis, A.Z.	2020	Bulletin of Electrical Engineering and Informatics 9(1), pp. 205-211	2
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IEEE 802.15.4 standard defines both media access control (MAC) and physical (PHY) layer protocols for low power consumption, low peak data rate, and low cost applications. Nowadays the most important feature of IEEE 802.15.4 is maximizing battery life. This paper is focusing how to achieve low average power consumption through assuming that the amount of data transmitted is short and that it is transmitted infrequently so as to keep a low duty cycle. The outcomes demonstrate that the phase shift estimation of Offset quadrature phase-shift keying (OQPSK) modulation has no impact on bit error rate (BER) if it is identical in the transmitter as same as in the receiver.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	461 Smart Fuel Pump Station Controlled by IoT and WSN Deployment	Al Janaby, A.O.	2020	IET Conference Proceedings 2020(6), pp. 487-491	2

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Wireless Sensor Network (WSN) is a prevalent solution for many recent applications in order to connect network components and to limit the cost required by the cable-based systems. One of these applications is monitoring then controlling the physical processes. We all know that fuel is a vital resource for life that make consumption and management is a key issue nowadays. Information technology systems (ITS) for fuel control are currently facing interoperability problems in pump stations due to the carelessness or neglecting of some drivers which cause fuel spill squinted on the ground. This paper proposes a new idea with new processes for fuel-saving, by installing a WSN operated with the Internet of Things (IoT) scheme. The WSN, mounted in the tank of the vehicle, will sense the level of fuel and filling percentage and help the pumping machine to fill the tank with the capacity required not to exceed the maximum capacity of the tank. Based on this standard, this paper proposes a Smart Filling Pump Station (SFPS) model combining IoT technologies with processes decision support systems.

<input type="checkbox"/>	462 Smart Fuel Pump Station Controlled by IoT and WSN Deployment	Al Janaby, A.O.	2020	IET Conference Proceedings 2020(6), pp. 24-28	0
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Wireless Sensor Network (WSN) is a prevalent solution for many recent applications in order to connect network components and to limit the cost required by the cable-based systems. One of these applications is monitoring then controlling the physical processes. We all know that fuel is a vital resource for life that make consumption and management is a key issue nowadays. Information technology systems (ITS) for fuel control are currently facing interoperability problems in pump stations due to the carelessness or neglecting of some drivers which cause fuel spill squinted on the ground. This paper proposes a new idea with new processes for fuel-saving, by installing a WSN operated with the Internet of Things (IoT) scheme. The WSN, mounted in the tank of the vehicle, will sense the level of fuel and filling percentage and help the pumping machine to fill the tank with the capacity required not to exceed the maximum capacity of the tank. Based on this standard, this paper proposes a Smart Filling Pump Station (SFPS) model combining IoT technologies with processes decision support systems.

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| <input type="checkbox"/> | 463 | Current vulnerabilities, challenges and attacks on routing protocols for mobile ad hoc network: A review ( Book Chapter) | AlRubaiei, M., Jassim, H., Sharef, B.T., (...), Sharef, Z.T., Malallah, F.L. | 2020 | <i>Swarm Intelligence for Resource Management in Internet of Things</i><br>pp. 109-129 | 5 |
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A mobile ad hoc network (MANET) is composed of a set of free and mobile nodes connected on an ad hoc basis. They form a temporary dynamic wireless network without any infrastructure. These mobile nodes act as hosts as well as routers in their mode of communication. As a router, these nodes provide connectivity by forwarding data packets among intermediate nodes until they reach the destination nodes. Routing protocol is used to maintain their communication and connectivity. However, due to security vulnerabilities of routing protocols and the absence of infrastructure, MANET is vulnerable to various security threats and attacks. The main objective of this research is to provide a comprehensive review of the existing vulnerabilities within ad hoc routing protocols that ultimately provides the basis to secure the communication in MANET. This chapter gives a brief summary about MANET and discusses the recent routing protocols, which are classified into three different categories as reactive, proactive, and hybrid protocols. In addition, it shows the current challenges and vulnerabilities on ad hoc routing protocols which lead to difficulties in designing and development of a secure routing protocol. Furthermore, it presents routing attacks into two categories, internal and external, as well as the security mechanism against them.

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| <input type="checkbox"/> | 464 | The association of mri findings in migraine with the headache characteristics and response to treatment   [La asociación de los hallazgos de la resonancia magnética en la migraña con las características del dolor de cabeza y la respuesta al tratamiento] | Alkhaffaf, W.H., Naif, M.M., Ahmed, R.N. | 2020 | Revista Latinoamericana de Hipertension 15(5), pp. 345-351 | 3 |
|--------------------------|-----|---|--|------|--|---|

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Background: Migraine is associated with magnetic resonance imaging (MRI) changes as white matter hyper intensities (WMHI), which is interpreted as ischemic in origin, the clinical significance & pathophysiology of these lesions are not well understood. The aim of study: to investigate these lesions and to find the relationships to the character of the headache and the effect on the response to treatment. Methods: a prospective, analytical study was conducted in Mosul city on 100 adult patients who were attending the neurological clinic, all fulfilled the migraine diagnostic criteria according to the Headache Classification Committee of the International Headache Society (IHS), the patients' demographics and the clinical characteristics of the headache were evaluated, all patients were examined by MRI, given treatment and followed up for three months. Results: average age was 35.04 years, with the highest prevalence noted at 29-38 years, of all patients 36% were having WMHI in MRI (positive group), while 64% were having normal MRI study (negative group), the average headache frequency was 5.69 attacks /month, average severity was (3.6) according to GAMS (Global assessment of migraine severity), average disability was 14.29 according to migraine Disability Assessment Questionnaire (MIDAS), the average duration was 10.63 hours, the mean frequency, severity, disability and duration were all significantly higher in the positive group, compared to the negative groups, and all are significantly reduced after treatment, however (91.3%), of improved cases (n=23) were from the negative group. Conclusion: migraine is associated with WMHI. Patients with WMHI showed a higher frequency, severity, disability as well as longer duration of the headache and a less favorable response to treatment.

<input type="checkbox"/>	465	Comparison Between Dynamic Discrete Element Method and Static Discrete Element Method to Determine Neck Size Between Powders During Sintering Process <i>Open Access</i>	Balod, A.O., Al Sarraf, Z.S., Basheer, E.A.	2020	Journal of Engineering Science and Technology Review 13(6), pp. 159-165	1
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Sintering plays a significant role on powder technology which produces a new solid product from powders using thermal energy. There are many parameters effect on sintering process such as: Temperature, time, size of particles, geometrical structure of the powders, composition of the powder, density of the powders. Discrete element method is the best method to simulate the behaviour of powders during sintering process. There are two styles of discrete element method used in this report such as dynamic method and Qusi-static method. In this research will be compared of two types for DEM to simulate sintering process between two powders. In this paper, the sintering process between copper powders was simulated using discrete element method. The contact and shrinkage ratios were used to show the behaviour of copper powders during sintering process, and it was made a comparison between two styles of discrete element method. Some parameters used in the simulation to know the impact of these parameters on sintering process.

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<input type="checkbox"/>	466	Controlling Embedded Systems Remotely via Internet-of-Things Based on Emotional Recognition <i>Open Access</i>	Zedan, M.J.M., Abduljabbar, A.I., Malallah, F.L., Saeed, M.G.	2020	Advances in Human-Computer Interaction 2020,8895176	2
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Nowadays, much research attention is focused on human-computer interaction (HCI), specifically in terms of biosignal, which has been recently used for the remote controlling to offer benefits especially for disabled people or protecting against contagions, such as coronavirus. In this paper, a biosignal type, namely, facial emotional signal, is proposed to control electronic devices remotely via emotional vision recognition. The objective is converting only two facial emotions: A smiling or nonsmiling vision signal captured by the camera into a remote control signal. The methodology is achieved by combining machine learning (for smiling recognition) and embedded systems (for remote control IoT) fields. In terms of the smiling recognition, GENKI-4K database is exploited to train a model, which is built in the following sequenced steps: Real-time video, snapshot image, preprocessing, face detection, feature extraction using HOG, and then finally SVM for the classification. The achieved recognition rate is up to 89% for the training and testing with 10-fold validation of SVM. In terms of IoT, the Arduino and MCU (Tx and Rx) nodes are exploited for transferring the resulting biosignal remotely as a server and client via the HTTP protocol. Promising experimental results are achieved by conducting experiments on 40 individuals who participated in controlling their emotional biosignals on several devices such as closing and opening a door and also turning the alarm on or off through Wi-Fi. The system implementing this research is developed in Matlab. It connects a webcam to Arduino and a MCU node as an embedded system.

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<input type="checkbox"/>	467	Diagnostic yield of duodenal biopsy site in celiac disease in children	Al-Hafidh, N.M., Al-Abachi, K.Th., Jawhar, N.M.T.	2020	Jordan Medical Journal 54(4), pp. 167-177	0
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Background: Histopathological lesions of celiac disease (CD) were described in the duodenal bulb, proximal and distal duodenal sites. Aim: To assess the association between the IgA anti-tTG titer and histological changes in different duodenal biopsy sites in pediatric patients with CD. Patients and Methods: A total of 42 symptomatic, seropositive children (21 male and 21 female) with an age range of 29 to 163 months, underwent oesophagogastroduodenoscopy (OGD). Biopsies were taken from the first part of the duodenum (bulb), proximal and distal duodenum. The association between IgA anti-tTG titer and celiac disease histopathological morphology of different duodenal biopsy sites was assessed. Results: IgA anti-tTG of  $\geq 150$  U/ml had a significant relation ( $p= 0.040$ ) to positive biopsy (marsh grade 1 -3) results. A cut off value of 126.15 U/ml of IgA anti-tTG titer was significantly ( $p=0 .000$ ) associated with sensitivity of 58.6- 63 % with the presence of marsh grade 3 in studied proximal duodenal site and duodenal bulb site respectively and 1- specificity of 0.00 value in both sites. IgA tTG of  $\geq 150$  IU/mL, is significantly ( $p= 0.0001-0.002$ ) associated with 100% specificity and 100% positive predictive value of having marsh grade 3 in the examined bulb and proximal duodenal sites. Conclusion: Our data revealed that high titers of IgA tissue transglutaminase of  $\geq 150$  U/mL significantly possessed 100 % positive predictive value of yielding marsh grade 3 results in the bulb and proximal duodenal sites consistent with the diagnosis of celiac disease in symptomatic children. Duodenal bulb and proximal duodenal sites react similarly concerning the IgA tTG level.

<input type="checkbox"/>	468	Vitamin D status and mitochondrial function in children	Al Hafidh, N.M., Aljammas, E.Kh., Al-Kataan, M.A.	2020	Jordan Medical Journal 54(4), pp. 189-196	0
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Objective: Mitochondrial dysfunction is likely to be determined by vitamin D deficiency. The aim of this study is to assess the association between mitochondrial function and Vitamin D level in children. Patients and methods: This study was a prospective study conducted in primary school children in Mosul city. The study included 300 children, with an age ranged from 6 to 12 years. Serum 25(OH) D was analyzed and mitochondrial function was evaluated by measurement of serum lactate, pyruvate Lactate and L-Carnitine Results: Serum lactate, serum pyruvate and the lactate/ pyruvate ratio increased significantly (p ranged between .0001- .026) in children with insufficient vitamin D level (12-19 ng/ml) compared to those with sufficient vitamin D values (20-100 ng/ml). There was significant elevation in serum lactate, serum pyruvate and lactate/pyruvate ratio (p <.000) with significant reduction in serum L-Carnitine (p <.000) in children with deficient vitamin D level (below 12 ng /ml) in comparison to the group with sufficient vitamin D level. In hypervitaminosis D group (> 100 ng /ml), there was significant elevation in serum lactate, lactate/pyruvate ratio (p <0.05) with significant reduction in serum pyruvate and L-Carnitine (p <.05) in comparison to child with sufficient serum vitamin D group. Receiver operating characteristic (ROC) analysis showed that with an area under the curve of  $0.990 \pm SE 0.001$ , the cut off value of 20.950 ng/ml of 25(OH) D had significant (p= .000) association with sensitivity of 100 % and 1-specificity of 0.060 with presence of L:P molar ratio of  $\leq 20$ . Conclusion: A cut off value of serum 25(OH) D  $\geq 20.950$  ng/ml should be maintained to insure normal mitochondrial function. Value of serum 25 (OH) D > 100 ng/ml is associated with abnormal mitochondrial function.

<input type="checkbox"/>	469	Array pattern recovery under amplitude excitation errors using clustered elements <i>Open Access</i>	Mohammed, J.R., Abdulqader, A.J., Thafer, R.H.	2020	Progress In Electromagnetics Research M 98, pp. 183-192	12
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In practice, the amplitude and phase excitations of array elements undergo random errors that lead to unexpected variations in the array radiation patterns. In this paper, the technique of the clustered array elements with discretized amplitude excitations is used to minimize the effect of random amplitude excitation errors and restore the desired array patterns. The most important feature of the proposed technique is its implementation in the design stage which may instantly count for any errors in the amplitude excitations. The cost function of the used optimizer is constrained to prevent any undesirable increase in the sidelobe levels due to unexpected excitation errors. Moreover, the error occurrences on the element amplitude excitations are considered to be either randomly over the whole array aperture or regionally (i.e., error affecting only a part of the array elements that located in a particular quadrant of the array aperture). Simulation results fully verify the effectiveness of the proposed technique.

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<input type="checkbox"/>	470	Tracking and controlling high-speed vehicles via CQI in LTE-a systems <i>Open Access</i>	Al Janaby, A.O., Al-Omary, A., Ameen, S.Y., Al-Rizzo, H.	2020	International Journal of Computing and Digital Systems 9(6), pp. 1109-1119	5
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One of the most serious problems facing the community around the world is car accidents. These accidents occur mainly due to the high-speed of vehicles. Thus, the paper aims to capture, track, and control high-speed vehicles using LTE-A mobile networks to avoid high-speed situations as well as decrease the number of accidents. The paper assumes that all vehicle drivers are now days carrying their mobiles that can be considered as mobile network user equipment (UE). This paper presents an innovative tracking and controlling high-speed vehicles in the LTE-A system that taking the advantages of Channel Quality Indicator (CQI) value mapped to the UE speed. The method can be accomplished by uploading the CQI index to the base station (BS), at the uplink, then the evolved node base station (eNB) sends an extra warning message at the downlink to initiate the radio frequency identifier (RFID) component fixed on the vehicle. The proposed scheme design assumes that the LTE networks have the all traffic speed for the covered area and to be activated when the speed is beyond the maximum speed. In that case, the RFID is activated and an alarm is switched on. Under now response, the RFID will activate the vehicle's traction control (TC), Engine Control Unit (ECU) and automatic brake system (ABS) to decrease the speed gradually. The proposed scheme was simulated using the system level-simulator (SLS) and the performance is depicted. The evaluations show that the CQI values are decreased meaningfully to 2 when the UE movement in the high-way increases to 150 km/h. Consequently, with the obtainability of CQI values at the LTE-A system, an immediate activity is completed to control the vehicle speed and warn the driver.

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<input type="checkbox"/>	471	Iso stress analysis and micro geometry corrections of parallel axis gearbox using dontaine systems gear production suite	Almaged, M., Noaman, M.N., Mahmood, A.K., Hero, N.Z.	2020	International Journal on Engineering Applications 8(5), pp. 194-201	3
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This paper shows the design procedure of a parallel axis gearbox for an electric power steering system using Dontyne Gear Production Suite (GPS) software. It will also investigate the effect of microgeometry correction on contact stress values. Initially, the quantitative design procedure of gears geometry is implemented through an iterative selection process. This includes a proper selection of several geometrical parameters to match the design requirements. Then, ISO 6336, which is the most common analytical gear stress analysis approach, is applied for calculating surface contact and root bending stresses in involute gears. Applying a good macro geometry technique is desirable in order to optimize gear design. However, the increasing demand for reliable and compact gear pair requires specifying proper micro geometry corrections in order to ensure minimum peak stress, low noise, and vibration. Thus, the tooth profile is modified by applying for tip relief from the start to the end of active profiles taken into consideration the value of the mean mesh deflection and the profile error. Similarly, tooth flank is crowned to compensate for equivalent misalignment and to achieve a uniform load distribution over the gear face width. The amount of crowning is determined by adding shaft deflection error to manufacturing error and torsional deflection. The results suggest that there is a significant improvement in contact stress value after applying tip relief and helix crowning.

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<input type="checkbox"/>	472	Simplified rectangular planar array with circular boundary for side lobe suppression <i>Open Access</i>	Mohammed, J.R.	2020	Progress In Electromagnetics Research M 97, pp. 57-68	4
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The thinning methods were usually used to simplify the array complexity by turning off some of the radiating elements in large planar arrays which lead to unavoidable reduction in the directivity. In this paper, an alternative method is used to simplify the array complexity by partitioning a large array into two contiguous subarrays. The first subarray is in circular planar shape in which its elements are uniformly excited, while the second subarray in which its elements surround the circular subarray, and they have significant impacts on the array radiation features and are chosen to be adaptive. The desired radiation characteristics are then obtained by optimizing only the adaptive elements which are far less than the total number of the original array elements. Since the majority of the elements in the proposed array are uniformly excited, its directivity and taper efficiency are found very close to that of the benchmark solutions. Simulation results verify the effectiveness of the proposed array.

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| <input type="checkbox"/> | 473 | Simulation and hardware implementation of DC-biased optical OFDM (DCO-OFDM) for visible light communications | Al-Adwany, M.A.S.,<br>Yahya, H.N.,<br>Thanoon, M.A.J.,<br>(...), Saadallah, N.R.,<br>Hamed, A.G. | 2020 | International Review on Modelling and Simulations<br>13(2), pp. 108-117 | 4 |
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In recent years, Optical Wireless Communications (OWC) have gained importance especially in the emerging Visible Light Communication (VLC) field. Compared with RF sources, VLC can provide higher data rates where Light Emitting Diodes (LEDs) are used due to its superior bandwidth. In this paper, an implementation of DC biased optical OFDM (DCO-OFDM) has been designed on Virtex-5 FPGA kit. The performance of the designed system has been investigated for different mapping schemes such as BPSK, QPSK, 8QAM, and 16QAM. The practical results are in agreement with the simulation one, and they reflect the reliability of the designed system. To investigate the designed VLC system further, visual images have been transmitted and received successfully with Bit Error Rates (BER) less than  $10^{-5}$ .

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	474 Antenna pattern optimization via clustered arrays <i>Open Access</i>	Mohammed, J.R., Abdulqader, A.J., Taher, R.H.	2020	Progress In Electromagnetics Research M 95, pp. 177-187	14

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In this paper, two different architectures based on fully and partially clustered arrays are proposed to optimize the array patterns. In the fully clustered arrays, all the elements of the original array were divided into several equal subarrays, while in the partially clustered arrays, only the side elements were grouped into subarrays, and the central elements were left individually. The second architecture enjoys many advantages compared to the first one. The proposed clustered arrays use quantized amplitude distributions, thus, their corresponding patterns were associated with high side lobes. To overcome this problem, a constraint mask was included in the pattern optimization process. Simulation results show that the peak sidelobe level and the complexity of the feeding network in the partially clustered arrays can be reduced to more than  $-28$  dB and 70.833%, respectively, for a total of 48 array elements, number of individual central elements = 24, number of clusters on both sides of the array  $Q = 4$ , and number of elements in each side cluster  $M = 6$ . Finally, the principles of the proposed clustered arrays were extended and applied to the two dimensional planar arrays.

<input type="checkbox"/>	475 Analysis and design of two-slot antennas for wireless communication applications <i>Open Access</i>	Sayidmarie, K.H., Younus, K.M.	2020	Progress In Electromagnetics Research C 104, pp. 115-128	2
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This paper presents the design and investigation of array antennas formed of two narrow rectangular slots. Two approaches for feeding the two slots by microstrip lines are investigated as well as the influence of changing the distance between the slots on the radiation pattern. The two slots are etched on one side of the substrate, while the feed network is placed on the other side. Two designs, depending on the feeding approach, are presented. In the first design, a simple T-shaped divider is used to feed the two slots, while the second design is based on a single microstrip line which feeds the two slots in series. Two antennas are for the first design, each with dimensions of  $57.83 \times 41.3\text{mm}^2$ , while those of the second design have dimensions of  $83.45 \times 36.9\text{mm}^2$ . The four proposed designs have been simulated and optimized using Computer Simulation Technology (CST-MWS) simulation program. Prototypes were fabricated and tested to verify the designs. The four antennas achieved  $-10$  dB impedance bandwidths between 8.6% and 9.4%, while the gain values were between 4.7 dB and 5.7 dB. The comparisons between the fabricated and simulated antennas considered the reflection coefficient and radiation pattern showing good agreement.

<input type="checkbox"/>	476	Determination of nitrite in meat by azo dye formation	Hamoudi, T.A., Jalal, A.F., Fakhre, N.A.	2020	Systematic Reviews in Pharmacy 11(6), pp. 535-542	4
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A nitrite has been determined by developing a simple and sensitive spectrophotometric method which is involve the reaction between nitrite and  $\text{I}^-$ -bromoaniline to form the corresponding diazonium ion which is afterward coupled with salbutamol in the presence of ammonia solution to form a yellow water-soluble and stable azo dye showing maximum absorption at 442 nm. A  $0.1\text{-}3 \mu\text{NO}_2^-/10 \text{ mL}$  is follow of Beer's law, i.e.,  $0.1\text{-}3.0 \text{ ppm}$  with Sandell's sensitivity index of  $4.24 \sim 10^{-4} \mu\text{.cm}^{-2}$  and, the molar absorptivity of  $1.08606 \times 10^5 \text{ L.mol}^{-1} \text{ .cm}^{-1}$ . The limit of detection and the limit of quantitation is calculated for determination of nitrite which is  $0.0199 \mu\text{.ml}^{-1}$  and  $0.0274 \mu\text{.ml}^{-1}$  severally. The applicability of this method has been tested by as saying nitrite in curing meat samples.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	477 Compact Bandstop Microstrip Line Filter Using U-Shaped Slot	Al-Atrakchii, M.A., Sayidmarie, K.H., Abd-Alhameed, R.A.	2020	IETE Journal of Research pp. 1-8	3

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A bandstop filter is proposed, where the resonant element is a slot that is folded to the shape of the letter U and embedded into the microstrip line so that no extra width is required. Moreover, the folding of the slot reduces its length to  $\frac{1}{4}$  the effective wavelength. This is a considerable size reduction in comparison with the filters using the resonant elements like rings or coupled short-circuited and open-circuited stubs. The designed prototype at the WLAN frequency of 2.45 GHz was investigated using the CST software package and showed low insertion loss at the passbands and high rejection across the stopband. The folding of the slot offered very low radiation at the stopband. The simulation results are validated by measurements on the fabricated prototypes.

<input type="checkbox"/>	478 Observed time difference of arrival based position estimation for LTE systems: Simulation framework and performance evaluation <i>Open Access</i>	Alhafid, A.K., Younis, S.	2020	Eastern-European Journal of Enterprise Technologies 3(9-105),201382, pp. 20- 28	6
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Precise user equipment (UE) location is paramount for the reliable operation of location-based services provided by mobile network operators and other emerging applications. In this paper, the Long Term Evolution (LTE) network positioning performance based on mobile assist Observed Time Difference of Arrival (OTDoA) method is considered. The received signal time difference (RSTD) measurements are estimated by the UE using dedicated position reference signal (PRS) transmitted in the downlink frame where the reported time measurements are used by the network for location calculation. A simulation framework for the position estimation in LTE networks is presented where the LTE downlink communication link is implemented. The correlation-based method for the time of arrival measurement is used for the implementation of OTDoA. The simulation framework provides different configurations and adjustments for the system and network parameters for evaluating the performance of LTE positioning using OTDoA over multipath fading channels. Different simulation scenarios are conducted to identify the influence of various parameters of LTE system and positioning procedure setup on the positioning accuracy. Simulation results demonstrated that the positioning accuracy is highly affected by the channel fading condition where the accuracy of time of arrival measurements is deteriorated in severe fading environments; however, the positioning accuracy can be significantly improved by increasing the positioning sequences involved in the estimation process either in the frequency domain or in the time domain.

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<input type="checkbox"/> 479	Driverless model cars: A review and analysis of autonomous vehicle literature on technology and application	Alnema, Y.H., Almaged, M., Noaman, M.N.	2020	International Review of Automatic Control 13(2), pp. 84-92	4
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–The term “autonomous car” or “driverless car” has recently drawn great attention among designers, manufacturers, and drivers because of its environmental and long-term economic benefits. This may comprise minimizing fuel consumption and reducing vehicle emission and pollution. Furthermore, it has great social benefits on commuting through reducing accidents rate and lowering road rage level to its minimum. However, these advantages come with a certain amount of difficulties such as the high costs of technology and manufacturing as well as the need for updating road system structures. This paper will mainly focus on discussing and evaluating the most recent contributions that have been implemented in order to make the design of driverless cars more efficient, cost-effective, robust, and safer. This includes a comprehensive review of the most recent results for groundbreaking technologies that make ordinary vehicles fully autonomous.

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<input type="checkbox"/>	480	Nonlinear control of gti for stabilizing future smart grids <i>Open Access</i>	Khather, S.I.	2020	International Journal of Power Electronics and Drive Systems 11(3), pp. 1268-1277	1
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The most important components of the distributed generation frameworks is the GTIs which is an interface amidst the utility and the source of energy. The recent years have seen an increased interest in the design and usage of GTIs due to its smaller weight and size, low cost and higher efficiency. But the problem of leakage currents in the transformerless inverter that is dependant on its topology and control scheme needs to be looked into carefully. Also, the high performance of the GTI requires a stringent control and various control systems are being developed and applied to the GTIs. This paper reviews the various topologies that are classified based on the attributes of the leakage current and the method of decoupling. Further it reviews and compares the different control techniques applied to the GTIs with respect to the frame of reference, controller, modulation technique and the control parameters considered.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 481	Flower shaped elliptical patch antenna for UWB applications	Majeed, A.H., Sayidmarie, K.H.	2020	International Journal of Microwave and Optical Technology 15(2),168, pp. 168-178	3

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This paper presents a new approach to antenna design with broad bandwidth and good omnidirectional radiation patterns in a frequency range that exceeds the UWB. The proposed antenna has three-elliptically shaped patches in a configuration inspired from the shape of flowers; (an elliptical patch at the center between two identical scaled elliptical patches). The antenna, which is constructed on an FR-4 epoxy substrate with  $\epsilon_r = 4.3$  has a compact size of 25mm x 25mm x 1.45mm. Two rectangular slots were cut in the ground plane in order to enhance the gain of the proposed antenna at higher frequencies. Parametric analyses are performed using the CST Microwave Studio version 2018, and the optimized antenna was fabricated. The antenna achieved a relative bandwidth of 136%, covering the frequency range 3.1GHz to 16.243GHz. The simulated and measured S11 results are in good agreement.

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<input type="checkbox"/> 482	Study of dyslipidemia in Iraqi hypertension patients in Tikrit City	Zaidan, Z.J., Hussein, A.M., Ahmed, S.M.	2020	Medico-Legal Update 20(1), pp. 516-521	0
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Background: Hypertension is prevalent all over the world and represent a major health problem. Dyslipidemia is a major cause of cardiovascular morbidity and mortality. There is a correlation between hyperlipidemia and hypertension. Aim of study: To find out the prevalence of dyslipidemia in Iraqi hypertension patients, and to find out how many of them on statin therapy, and how many reach target according to the last guidelines Patients and methods: A cross-sectional study conducted in outpatient clinic in Salahaddin General Hospital in Tikrit City. About 344 hypertensive patients were included in this study. A questionnaires including general information about patients were filled and venous blood was drawn from every patient and sent for hospital lab to measure necessary investigations. ASCVD risk score was calculated for every patient by ASCVD Risk Estimator Plus. Then data were analyzed by application of Microsoft excel program and Statistical Package for Social Sciences (SPSS) version 23. Results: (49%) of hypertension patients had total cholesterol of >200 mg/dl, (63.4%) had LDL of  $\geq 115$  mg/dl, (57.6%) had HDL of <40 mg/dl, and (54.1%) had triglycerides of  $\geq 150$ mg/dl. Smoker patients in this study had highest ASCVD risk score (12.65 $\pm$ 6.63%) followed by former smokers (7.36 $\pm$ 3.56%) and non-smokers (6.02 $\pm$ 4.16%). Only 76 (22.1%) of hypertension patients were on statin therapy for hyperlipidemia and only 18 (23.7%) of them reaching target LDL level according to 2016 ESC/EAS guidelines. While 268 (77.9%) of hypertension patients had no statin therapy and only 65 (24.3%) of them had LDL level within target. Conclusion: Hyperlipidemia is very prevalent in hypertension patients in Tikrit City, despite that only one of five receiving treatment and only one of four from those who received treatment reaching the target of LDL level according to 2016 ESC/EAS guidelines, and three of four of those who are on no treatment are out of the target. This is a major health problem need attention.

<input type="checkbox"/>	483	Comparisons of extreme learning machine and backpropagation-based i-vector approach for speaker identification <i>Open Access</i>	Al-Kaltakchi, M.T.S., Al-Nima, R.R.O., Abdullah, M.A.M.	2020	Turkish Journal of Electrical Engineering and Computer Sciences 28(3), pp. 1236-1245	10
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The extreme learning machine (ELM) is one of the machine learning applications used for regression and classification systems. In this paper, an extended comparison between an ELM and the backpropagation neural network (BPNN)-based i-vector is given in terms of a closed-set speaker identification task using 120 speakers from the TIMIT database. The system is composed of the mel frequency cepstral coefficient (MFCC) and power normalized cepstral coefficient (PNCC) approaches to form the feature extraction stage, while the cepstral mean variance normalization (CMVN) and feature warping are applied in order to mitigate the linear channel effect. The system is utilized with equal numbers of speakers of both genders with 120 speakers with eight dialects from the TIMIT database. The results demonstrate that the combination of the i-vector with the ELM for different features has the highest speaker identification accuracy (SIA) compared with the combination of the BPNN with the i-vector. The results also show that the i-vector with ELM approach is faster than the BPNN-based i-vector and it has the highest SIA.

<input type="checkbox"/>	484	Optimal downlink transmission for cell-free SWIPT massive MIMO systems with active eavesdropping <i>Open Access</i>	Alageli, M., Ikhlef, A., Alsifiany, F., (...), Chen, G., Chambers, J.	2020	IEEE Transactions on Information Forensics and Security 15,8907878, pp. 1983-1998	46
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This paper considers secure simultaneous wireless information and power transfer (SWIPT) in cell-free massive multiple-input-multiple-output (MIMO) systems. The system consists of a large number of randomly (Poisson-distributed) located access points (APs) serving multiple information users (IUs) and an information-untrusted dual-antenna active energy harvester (EH). The active EH uses one antenna to legitimately harvest energy and the other antenna to eavesdrop information. The APs are networked by a centralized infinite backhaul which allows the APs to synchronize and cooperate via a central processing unit (CPU). Closed-form expressions for the average harvested energy (AHE) and a tight lower bound on the ergodic secrecy rate (ESR) are derived. The obtained lower bound on the ESR takes into account the IUs' knowledge attained by downlink effective precoded-channel training. Since the transmit power constraint is per AP, the ESR is nonlinear in terms of the transmit power elements of the APs and that imposes new challenges in formulating a convex power control problem for the downlink transmission. To deal with these nonlinearities, a new method of balancing the transmit power among the APs via relaxed semidefinite programming (SDP) which is proven to be rank-one globally optimal is derived. A fair comparison between the proposed cell-free and the colocated massive MIMO systems shows that the cell-free MIMO outperforms the colocated MIMO over the interval in which the AHE constraint is low and vice versa. Also, the cell-free MIMO is found to be more immune to the increase in the active eavesdropping power than the colocated MIMO.

<input type="checkbox"/>	485	Design an active verification mechanism for certificates revocation in OCSP for internet authentication <i>Open Access</i>	Mahmmod, K.F., Azeez, M.M., Ismael, Z.H.	2020	International Journal of Electrical and Computer Engineering 10(4), pp. 4208-4216	3
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No doubt that data security online is crucial. Therefore, great attention has been paid to that aspect by companies and organizations given its economic and social implications. Thus, online certificate status protocol (OCSP) is considered one of the most prominent protocol functioning in this field, which offers a prompt support for certificates online. In this research, a model designed based on field programmable gate array (FPGA) using Merkle's tree has been proposed to overcome the delay that might have occurred in sorting and authentication of certificates. Having adopted this model and with the assistance of Hash function algorithm, more than 50% of certificates have been processed in comparison with standard protocol. Moreover, certificates have been provided with substantial storage space with high throughput. Basically, Hash function algorithm has been designed to arrange and specify a site of verified or denied certificates within time of validity to protect servers from intrusion and clients from using applications with harmful contents.

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| <input type="checkbox"/> | 486 | Changes of liver transaminases levels during one year follow up of deferasirox treatment in children with $\beta$ -thalassemia major<br><i>Open Access</i> | Al-Hafidh, N.M.,<br>Younis, M.S. | 2020 | Bangladesh Journal of<br>Medical Science<br>19(3), pp. 453-457 | 2 |
|--------------------------|-----|--|----------------------------------|------|--|---|

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Objectives: Abnormal liver function tests lead to interruptions of Deferasirox therapy. The aim of this study is to determine the changes in liver transaminases levels in pediatric patients with  $\beta$ -thalassemia major during one year follow up of Deferasirox treatment. Material and methods: This study was conducted at Ibn Al Atheer center of thalassemia, Mosul city, Iraq during the period from 3rd of February 2013 till 2nd of February 2014. Seventy one pediatric patients with  $\beta$ -thalassemia major were included in the study. Alanine aminotransferase (ALT) and aspartate aminotransferase (AST) were measured every 4 weeks after starting Deferasirox therapy dose of 30 mg /kg/day for one year. Results: In comparison to mean baseline ALT values, there were significant elevations of mean ALT values in each of the subsequent 4-weekly interval readings after Deferasirox therapy. There was nearly eleven times relative risk of having ALT  $\geq 5$  upper normal level (UNL) in patient with abnormal baseline ALT (Odd ratio 10.96, 95% Confidence Interval: lower 2.05, upper 58.58). During a year of study, Deferasirox therapy was associated with ALT readings of  $\geq 5$  UNL in 22(31%) of pediatric  $\beta$ -thalassemia patients and that elevation lasted for 4 weeks in 95.5% of patients. Conclusions: Elevated ALT of  $\geq 5$  UNL after Deferasirox therapy was short-lived, and lasted for 4 weeks in 95.5% of patients. It is advisable to start Deferasirox therapy at a dose of 30 mg /kg / day when baseline ALT level is normal.

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| <input type="checkbox"/> | 487 | Reversible color video watermarking scheme based on hybrid of integer-to-integer wavelet transform and Arnold transform<br><i>Open Access</i> | Malallah, F.L.,<br>Jafaar, A.A., Abbas,<br>N.H., Saeed, M.G. | 2020 | International Journal of<br>Electrical and Computer<br>Engineering<br>10(4), pp. 3519-3527 | 12 |
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Unauthorised redistribution and illegal copying of digital contents are serious issues which have affected numerous types of digital contents such as digital video. One of the methods which have been suggested to support copyright protection is to hide digital watermark within the digital video. This paper introduces a new video watermarking system which is based on a combination of Arnold transform and integer wavelet transforms (IWT). IWT is employed to decompose the cover video frames whereby Arnold transform is used to scramble the watermark which is a grey scale image. Scrambling the watermark before the concealment makes the transmission more secure by disordering the information. The system performance was benchmarked against related video watermarking schemes, in which the evaluation processes consist of testing against several video operations and attacks. Consequently, the scheme has been demonstrated to be perfectly robust.

<input type="checkbox"/>	488	Phase-only nulling with limited number of controllable side elements <i>Open Access</i>	Abdulqader, A.J., Mohammed, J.R., Thaher, R.H.	2020	Progress In Electromagnetics Research C 99, pp. 167-178	10
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In this paper, the required array patterns with controlled nulls are obtained by optimizing only the excitation phases of a small number of elements on both sides of the array. A genetic algorithm is used to appropriately find which elements of the array to be optimized and also to find the required number of the excitation phases. The performance of the proposed phase-only method is compared with some other exciting methods, and it is found to be competitive, fulfil all the desired radiation characteristics, and represent a good solution for interference mitigation. Moreover, the proposed phase-only array is designed and validated under realistic electromagnetic effects using CST full wave modeling. Experimental results are found in a good agreement with the theoretical ones and show realistic array patterns with accurate nulls.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	489 Optimized perturb and observe technique with fast convergence under rapidly changing of irradiation	Abd, H.M., Jasim, A.M., Aube, S.M.	2020	Journal of Engineering Science and Technology 15(1), pp. 66-76	0

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The (P-V) curve of solar cell has one point, at which, the extracted power is maximum and referred to as the Maximum power point. Moreover, the characteristics of the photovoltaic cell are not linear, and it changes with the weather conditions (temperature and illumination). A Maximum Power Point Tracker (MPPT) is a combination of hardware and software used to track and determine this point from the solar cell. Many algorithms have been used to run the MPPT, among them is the Perturb and Observe (P&O) technique. The advantages of P&O technique are efficiency and simplicity. However, the drawback of the P&O is the MPP tracking loss under fast-changing of the irradiation. In this paper, the P&O algorithm is modified to use the photovoltaic output current in modifying the step size. The modified algorithm is appropriate for practical weather conditions. In addition, this algorithm increases the P&O speed and decreases the steady-state oscillation. A boost converter is used to test the modified algorithm. Finally, simulation emphasizes that the modify algorithm increases the efficiency and progresses the dynamic response in comparison with the conventional variable step size P&O algorithms.

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<input type="checkbox"/>	490 Securing speech signals by watermarking binary images in the wavelet domain <i>Open Access</i>	Rashid, R.S., Mohammed, J.R.	2020	Indonesian Journal of Electrical Engineering and Computer Science 18(2), pp. 1096-1103	3
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Digital watermarking is the process of embedding particular information into other signal data in such a way that the quality of the original data is maintained and secured. Watermarking can be performed on images, videos, texts, or audio to protect them from copyright violation. Among all of these types of watermarking, audio watermarking techniques are gaining more interest and becoming more challenging because the quality of such signals is highly affected by the watermarked code. This paper introduces some efficient approaches that have capability to maintain the signals' quality and preserves the important features of the audio signals. Moreover, the proposed digital audio watermarking approaches are performed in the transform domain. These approaches are gaining more attention due to their robustness or resistance to the attackers. These transform domains include discrete cosine transform (DCT), short-term Fourier transform (STFT), and digital wavelet transform (DWT). Furthermore, the most digital wavelet transforms were found to be applicable for speech watermarking are the Haar and the Daubechies-4.

<input type="checkbox"/>	491	An Effective Protein Multiple Structure Alignment Using Parallel Computing	Al-Neama, M.W., Ali, S.M., Malallah, F.L., Saeed, M.G.	2020	Communications in Computer and Information Science 1174 CCIS, pp. 32-43	0
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Multiple spatial alignments of protein structures are an important tool of structural biology. Analysis of protein structures allows us to establish their homology; i.e., the origin from a common ancestor. The rapid growth in the number of known protein structures determines the requirements for the speed of the spatial alignment algorithms. This paper proposes a strategy for using parallel computations to efficiently construct multiple spatial equalizations using multi-core cluster system. The developed algorithm is based on the well-proven sequential method of spatial alignment of Multiple Alignments with Translations and Twists (MATT). Results show that the best speedup (38.44) and the least difference between the experimental and theoretical efficiency (0.01) was obtained. The speedup and efficiency based on (128) nodes have been evaluated using LinkSCEEM-2 systems at Bibliotheca Alexandrina, Egypt.

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<input type="checkbox"/>	492	Comparison of feature extraction and normalization methods for speaker recognition using grid-audiovisual database <i>Open Access</i>	Al-Kaltakchi, M.T.S., Al-Raheem Taha, H.A., Shehab, M.A., Abdullah, M.A.M.	2020	Indonesian Journal of Electrical Engineering and Computer Science 18(2), pp. 782-789	7
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In this paper, different feature extraction and feature normalization methods are investigated for speaker recognition. With a view to give a good representation of acoustic speech signals, Power Normalized Cepstral Coefficients (PNCCs) and Mel Frequency Cepstral Coefficients (MFCCs) are employed for feature extraction. Then, to mitigate the effect of linear channel, Cepstral Mean-Variance Normalization (CMVN) and feature warping are utilized. The current paper investigates Text-independent speaker identification system by using 16 coefficients from both the MFCCs and PNCCs features. Eight different speakers are selected from the GRID-Audiovisual database with two females and six males. The speakers are modeled using the coupling between the Universal Background Model and Gaussian Mixture Models (GMM-UBM) in order to get a fast scoring technique and better performance. The system shows 100% in terms of speaker identification accuracy. The results illustrated that PNCCs features have better performance compared to the MFCCs features to identify females compared to male speakers. Furthermore, feature wrapping reported better performance compared to the CMVN method.

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<input type="checkbox"/>	493	On the performance of non-orthogonal multiple access (NOMA) using FPGA <i>Open Access</i>	Ahmed, M.A., Mahmmod, K.F., Azeez, M.M.	2020	International Journal of Electrical and Computer Engineering 10(2), pp. 2151-2163	12
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In this paper, non-orthogonal multiple access (NOMA) is designed and implemented for the fifth generation (5G) of multi-user wireless communication. Field-programmable gate array (FPGA) is considered for the implementation of this technique for two users. NOMA is applied in downlink phase of the base-station (BS) by applying power allocation mechanism for far and near users, in which one signal contains the superposition of two scaled signals depending on the distance of each user from the BS. We assume an additive white Gaussian noise (AWGN) channel for each user in the presence of the interference due to the non-orthogonality between the two users' signals. Therefore, successive-interference cancellation (SIC) is exploited to remove the undesired signal of the other user. The outage probability and the biterror rate performance are presented over different signal-to-interference-plus-noise ratio (SINR). Furthermore, Monte-Carlo simulations via Matlab are utilized to verify the results obtained by FPGA, which show exact-close match.

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<input type="checkbox"/>	494	Efficient power allocation method for non orthogonal multiple access 5G systems <i>Open Access</i>	Al-Adwany, M.A.S.	2020	International Journal of Electrical and Computer Engineering 10(2), pp. 2139-2150	5
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One of the hot research topics for the upcoming 5G (fifth-generation) wireless communication networks is the non orthogonal multiple access (NOMA) systems, where it have attracted both industrial and academic fields to improve the existing spectral efficiency. In fact, the multiuser detection process for NOMA systems is largely affected by the power distribution of the received signals. In this paper, a new method has been proposed to control the transmit power among active users in one of the promising NOMA systems; the interleave division multiple access (IDMA) which has been adopted here for consideration. Unlike conventional methods, where tedious mathematical computations are required; a simple and direct method has been derived. The proposed method has been applied to IDMA system with different FEC codes. The obtained results show that the proposed method outperforms the conventional one as compared to optimal results.

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| <input type="checkbox"/> | 495 | Elevation, pitch and travel axis stabilization of 3DOF helicopter with hybrid control system by GA-LQR based PID controller<br><i>Open Access</i> | Mohammed, I.K.,<br>Abdulla, A.I. | 2020 | International Journal of Electrical and Computer Engineering<br>10(2), pp. 1868-1884 | 14 |
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This research work introduces an efficient hybrid control methodology through combining the traditional proportional-integral-derivative (PID) controller and linear quadratic regulator (LQR) optimal controller. The proposed hybrid control approach is adopted to design three degree of freedom (3DOF) stabilizing system for helicopter. The gain parameters of the classic PID controller are determined using the elements of the LQR feedback gain matrix. The dynamic behaviour of the LQR based PID controller, is modeled in state space form to enable utilizing state feedback controller technique. The performance of the proposed LQR based LQR controller is improved by using Genetic Algorithm optimization method which are adopted to obtain optimum values for LQR controller gain parameters. The LQR-PID hybrid controller is simulated using Matlab environment and its performance is evaluated based on rise time, settling time, overshoot and steady state error parameters to validate the proposed 3DOF helicopter balancing system. Based on GA tuning approach, the simulation results suggest that the hybrid LQR-PID controller can be effectively employed to stabilize the 3DOF helicopter system.

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| <input type="checkbox"/> | 496 | Optimal tuning linear quadratic regulator for gas turbine by genetic algorithm using integral time absolute error<br><i>Open Access</i> | Ahmed, J.M. | 2020 | International Journal of Electrical and Computer Engineering<br>10(2), pp. 1367-1375 | 3 |
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For multiple input-multiple output (MIMO) systems, the most common control strategy is the linear quadratic regulator (LQR) which relies on state vector feedback. Despite this strategy gives very good result, it still has trial and error procedure to select the values of its weight matrices which plays a important role in reaching to the desired system performance. In order to overcome this problem, the Genetic algorithm is used. The design of genetic algorithm based linear quadratic regulator (GA-LQR) utilized Integral time absolute error (ITAE) as a cost function for optimization. The proposed procedure is implemented on a linear model of gas turbine to control the generator spool's speed and the output power.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	497 Effect of increasing the network capacity using device-to-device technology for next generation networks <i>Open Access</i>	Yonis, A.Z.	2020	Indonesian Journal of Electrical Engineering and Computer Science 17(1), pp. 303-309	0

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Device-to-device (D2D) communication is one of the key technologies in the fifth generation of wireless communication systems, which is defined as a direct communication between two mobile users without traversing the base station D2D communication plays an increasingly important role and which improves communication capability and reduces communication delay and power consumption. D2D communication that enables direct communication between nearby mobiles is an exciting and innovative feature of next generation cellular networks. In order to meet the rising subscriber demands and provide them satisfactory services, D2D communication is being looked upon as an emerging technology of the next generation networks.

<input type="checkbox"/>	498 Absorption enhancement in an amorphous silicon using a cluster of plasmonic hollow ring nano-antennas	Rasheed, A.A., Sayidmarie, K.H., Mohammed, K.K.	2020	Smart Innovation, Systems and Technologies 147, pp. 261-268	0
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Enhancement of absorption and extending its bandwidth is of major interest for solar cells, photodetectors, and variety of applications. This paper presents a nano-structure formed of an array whose elements are in the form of a 3X3 cluster of metal rings having a similar outer diameter but with various inner diameters. Thus, each ring size produces certain resonance frequency and the result of the cluster arrangement is staggered responses that possess larger bandwidth. Simulations using the periodic unit cell approach and the CST microwave studio suite showed that the average absorption power in an amorphous silicon layer has been improved by 3.32 times compared to that without rings. The obtained response covers the frequency range from 230 THz to 360 THz.

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<input type="checkbox"/>	499	Integrated Frequency-Reconfigurable Slot Antenna and Connected Slot Antenna Array for 4G and 5G Mobile Handsets	Ikram, M., Abbas, E.A., Nguyen-Trong, N., Sayidmarie, K.H., Abbosh, A.	2019	IEEE Transactions on Antennas and Propagation 67(12),8777306, pp. 7225-7233	104
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A dual-function slot antenna at microwave and millimeter-wave (mm-wave) band is proposed. The design consists of a slot printed on the edge of the structure ground plane. A short-circuited varactor diode (VAR) is used to achieve the frequency tunability from 2.05 to 2.7 GHz (4G, WLAN) with a maximum realized gain of 4.5 dBi. For mm-waveband, the slot works as a connected slot antenna array (CSAA) by using eight periodic feeders with a wide bandwidth of 23-29 GHz (5G) and a maximum realized gain of 12.5 dBi. To enhance the functionality, two slots are orthogonally arranged for multiple-input multiple-output (MIMO) application. The whole structure is implemented using Rogers 5880 substrate with a board size of 70× 60× 0.381 mm<sup>3</sup>. The envelope correlation coefficient (ECC) and isolation are calculated, showing satisfactory MIMO characteristics. The minimum ECC value is 0.01, while the isolation is more than 20 dB among different feeding ports. Due to the integration of 4G and 5G operations into a single narrow slot, the proposed antenna system is compact, simple, and planar in structure and, thus, attractive for future mobile handheld devices.

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<input type="checkbox"/>	500	Design of a discrete PID controller based on identification data for a Simscape buck boost converter model <i>Open Access</i>	Almaged, M., Khather, S.I., Abdulla, A.I.	2019	International Journal of Power Electronics and Drive Systems 10(4), pp. 1797-1805	7
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This work shows the design and tuning procedure of a discrete PID controller for regulating buck boost converter circuits. The buck boost converter model is implemented using Simscape Matlab library without having to derive a complex mathematical model. A new tuning process of digital PID controllers based on identification data has been proposed. Simulation results are introduced to examine the potentials of the designed controller in power electronic applications and validate the capability and stability of the controller under supply and load perturbations. Despite controller linearity, the new approach has proved to be successful even with highly nonlinear systems. The proposed controller has succeeded in rejecting all the disturbances effectively and maintaining a constant output voltage from the regulator.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	501 Comparative Study of LQR, LQG and PI Controller Based on Genetic Algorithm Optimization for Buck Converters	Almaged, M., Khather, S.I., Abdulla, A.I., Amjed, M.R.	2019	ELECO 2019 - 11th International Conference on Electrical and Electronics Engineering 8990572, pp. 1012-1017	1

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This paper describes the design procedure of LQR, LQG and PI controller for a buck power converter circuit. Initially, Genetic algorithm (GA) is implemented to determine an optimal value for the feedback gain matrix and Kalman filter estimator gain of the LQR and LQG controllers respectively. LQR control approach is usually implemented when all the state variables of the system are readily available and the system measurements are noise-free. However, sometimes, it is not possible to estimate all the states of the system besides neither the measurement nor the process are free of noises. Therefore, Linear Quadratic Gaussian (LQG) control technique is introduced that is basically an LQR, which is the groundwork of the LQG, with a Kalman filter estimator. The estimation analysis confirms the performance of the designed LQG controller. Simulation results showed that the Kalman filter has succeeded in producing an appropriate estimation in spite of noises presence. Finally, a comparison was made between LQG and PI controllers. It has shown that LQG controller is capable of obtaining the best transient response in term of settling time and peak overshoot values as it combines the advantages of both LQR and PI controllers.

<input type="checkbox"/>	502 GeneXpert MTB/RIF assay - A major milestone for diagnosing Mycobacterium tuberculosis and rifampicin-resistant cases in pulmonary and extrapulmonary specimens <i>Open Access</i>	Ahmed, S.T.	2019	Medical Journal of Babylon 16(4), pp. 296-301	3
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**Background and Objective:** Tuberculosis (TB) is an endemic disease in Iraq. Many methods are available to diagnose pulmonary and extrapulmonary TB (EPTB). The most traditional test is the sputum smear for acid-fast bacilli (AFB). However, it is well known for its low sensitivity and specificity. On the other hand, culturing AFB although considered the gold standard for detecting *Mycobacterium tuberculosis* (MTB), yet it takes long time to confirm or exclude the presence of TB. The WHO has recommended the use of a gene-based molecular technique called GeneXpert (GX) MTB/rifampicin (RIF) for rapid and accurate detection of MTB in pulmonary and extrapulmonary (EPTB) sites. GX is a quick, fully automated system that can be easily used with minimal training. The objective of this study was to evaluate the accuracy of the GX test for diagnosing MTB in pulmonary and extrapulmonary sites in Kurdistan/Iraq that is considered as an endemic area for TB, as well as testing the ability of this technique to identify the resistant strains of these bacilli to first-line anti-TB treatment. **Methodology:** A total of 925 (504 males and 421 females) patients attended the TB center in Erbil/Iraq from August 2015 to August 2017. These patients were clinically diagnosed or suspected to have TB. Two sputum samples were collected from each patient and subjected to AFB smear staining. The other portions of the sputum were examined by GX assay, and a number of cases were grown on the Lowenstein-Jensen media. For extrapulmonary fluid samples, the same tests were done. **Results:** Seven hundred and forty-three were pulmonary samples, and the remaining 182 cases were extrapulmonary specimens (cerebrospinal fluid, peritoneal aspirate, pleural fluid, urine, and blood). Of these, 575 had their AFB smears done which was positive for in 184 (32%) and negative in 391 (68%) cases. On the other hand, real-time polymerase chain reaction using GX technology was positive in 228 (39.65%) while negative in 347 (60.34%) cases. The sensitivity and specificity of the GeneX versus AFB smear considering culture as a gold standard were 94.9% and 80.1%, respectively. In addition, GX technique revealed that about 20 (14.3%) of positive MTB cases were resistant to RIF therapy. **Conclusion:** The current study displayed the real significance of using GX test in diagnosing MTB in pulmonary and extrapulmonary specimens to save time and to avoid unnecessary anti-TB treatment.

<input type="checkbox"/>	503	Feature Selection Based on Wrapper and Information Gain	Thanoon, M.A., Zedan, M.J.M., Hameed, A.N.	2019	NICST 2019 - 1st Al-Noor International Conference for Science and Technology 9043805, pp. 32-37	3
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The accuracy of the classification process always suffers from the high dimensionality problem due to the independent, irrelevant, redundant and not useful attributes of the dataset. In this research, feature selection techniques (wrapper selection method, and information gain method) are obtained to handle the mentioned problem by removing those features and reducing the dataset dimensions. The techniques include wrapper selection method and information gain method. This research predicated on the diabetes dataset in WEKA application, which contains checking seven models enforce wrapper selection method as an attribute evaluator, forwarding direction, backward, and bi-directional best-first search method and Naïve Bayes technique as a classifier method, checking eight models applying information gain method as attribute evaluator, as well as the ranker as a search method. Additional to demonstrate the decision tree and classification figures for the best-obtained models in each one technique. The results proved the ability of wrapper and information gain to choose a minimum number of features in order to classify the data with an accuracy of more than 76% in this work.

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<input type="checkbox"/>	504	Topical approach versus systemic antimicrobial therapy for treating diabetic foot infection in ninevah	Alabdaly, M., Hassan, T., Bayati, S.A.	2019	Indian Journal of Public Health Research and Development 10(10), pp. 702-706	0
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Infection may be a common character of advanced diabetic foot unwellness and therefore the commonest reason for diabetes-related hospitalizations and lower extremity amputations. The topical (local) treatment has the benefits of avoiding systemic adverse effects, providing an enhanced target area concentration, and permitting the utilization of agents not offered for systemic treatment. The aim of this study is to show the effect of topical antimicrobial approach versus systemic antimicrobial therapy for treating diabetic foot infection in Ninevah. We included randomized controlled trial that allocated people individually as a two-group patient, parallel (topical and systemic) studies involving patients with an infected diabetic foot. The results were expressed in a reduction in risk (efficacy) 91% and the relative risk 0.09 with 95% confidence intervals (0.011-0.696). The results suggest that topical infiltration treatment, when accompanied by appropriate wound care, can provide a therapeutic alternative to a broad-spectrum systemic antibiotic agent.

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<input type="checkbox"/>	505	Evaluating the vitality of coccoid form of helicobacter pylori by a transmission electron microscope study	Al-Sultan, S.A.H.	2019	Indian Journal of Public Health Research and Development 10(10), pp. 1056-1061	0
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Most studies, if not all, emphasize that the coccoid form of (*Helicobacter Pylori*) is the dead form of this bacteria, because of incapability of growing this bacterium in the culture media used in growing the spiral form of the same bacteria. The coccoid form doesn't have a vital role in infection, so it has no biological or medical importance. Hence, the aim of this study is to evaluate the vitality of coccoid form by using the Transmission Electron Microscope (TEM) technique. The sample consisted of (54) patients attending endoscopy unit at Ibn-Sena teaching hospital in Mosul/Iraq. The Oesophago-gastro-duodenoscopic (OGD) findings of these patients were gastritis, duodenitis, gastric and duodenal ulcer. Two biopsies were taken from all patients, and each was submitted to bacteriological and histological examination by Light microscope (LM) and TEM.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	506 UWB elliptical patch monopole antenna with dual-band notched characteristics <i>Open Access</i>	Majeed, A.H., Sayidmarie, K.H.	2019	International Journal of Electrical and Computer Engineering 9(5), pp. 3591-3598	13

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In this paper, a new approach to the design of an UWB monopole antenna with dual band-notched characteristics is presented. The antenna has the form of an elliptical monopole over a ground plane having an elliptical slot to achieve the UWB. The dual-band notch function is created by inserting a U-shaped and a C-shaped slots on the radiating patch, thus no extra size is needed. The proposed antenna shows a good omnidirectional radiation pattern across the band from 3.2 to more than 14 GHz. The dual band-rejection is for 4.88-5.79GHz centered at 5.4GHz and 7.21-8.46 GHz centered at 7.8 GHz. The antenna prototype using the FR-4 substrate with  $\epsilon_r=4.3$  has a compact size of 25mm×25 mm ×1.45mm. The fabricated prototype showed experimental results comparable to those obtained from the simulations.

<input type="checkbox"/>	507 Game theoretic handover optimisation for dense small cells heterogeneous networks	Alhabo, M., Zhang, L., Nawaz, N., Al-Kashoash, H.	2019	IET Communications 13(15), pp. 2395-2402	12
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In this study, the authors formulate a non-cooperative game approach in which all base stations compete in a selfish manner to transmit at higher power. Each base station in the network is considered as a player in the game. The solution of the game is obtained by finding the optimal point, namely the Nash equilibrium. The proposed method, named efficient handover game theoretic, targets to manage the handover in dense small cell heterogeneous networks. Each player in the game optimises its payoff by adjusting the transmission power so as to enhance the overall performance in terms of throughput, handover, energy consumption, and load balancing. In order to choose the preferred transmission power for each player, the payoff function takes into account the gain of increasing the transmission power, energy consumption, base station load, and unnecessary handover. The cell selection is performed using the technique for order preference by similarity to an ideal solution (TOPSIS). A game theoretical approach is implemented and evaluated for dense small cell heterogeneous networks to validate the enhancement achieved in the proposed method. Results show that the proposed game theoretical approach provides a throughput enhancement while reducing the power consumption in addition to minimise the unnecessary handover and balance the load between base stations.

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<input type="checkbox"/>	508	Additive Noise Level Estimation Based on Singular Value Decomposition (SVD) in Natural Digital Images	Khmag, A., Malallah, F.L., Sharef, B.T.	2019	Proceedings of the 2019 IEEE International Conference on Signal and Image Processing Applications, ICSIPA 2019 8977764, pp. 225-230	3
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True Noise level estimation is a seminal research of interest in the topic of digital image processing especially in blind noise removal methods. In this study, an estimation of additive white Gaussian noise (AWGN) in digital natural images is introduced. The adaptive noise level estimation is designed mainly based on singular value decomposition (SVD) of the natural images. The proposed technique contains two pivotal stages. Firstly, typical noise level estimate is utilized in order to manipulate the algorithm factors to be used in the second stage of the proposed technique. Secondly, the adjusted parameters are used in SVD in order to speed up the estimation processes and increase the accuracy rate of the noise level estimation. The experimental results depict that the proposed algorithm performs professionally over a several ranges of visual details which is presented in PSNR and MSE in AWGN removal methods. In addition, in terms of time complexity, the proposed algorithm in second stage shows significant performance in terms of computational load and achieves high running speed.

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<input type="checkbox"/>	509	Design, simulation and implementation of very compact open-loop trisection BPF for 5G communications <i>Open Access</i>	Al-Yasir, Y.I.A., Parchin, N.O., Alabdallah, A., (...), Elfergani, I.T.E., Abd-Alhameed, R.A.	2019	IEEE 5G World Forum, 5GWF 2019 - Conference Proceedings 8911677, pp. 189-193	13
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A very compact microstrip open-loop bandpass filter (BPF) with asymmetric frequency response and covering the 3.4 to 3.7 GHz 5G spectrum is presented in this paper. The planar BPF consists of three trisection open-loop ring resonators with 50  $\Omega$  transmission lines for input and output terminals. An attenuation zero of finite frequency is successfully generated on the upper edge of the passband to achieve sharper cut-off frequency for the passband. The realization of the microstrip trisection filters not only reduces the size of the layout but also introduces either positive or negative cross-coupling. The cross-coupling coefficients ( $M_{ij}$ ) between the poles are optimized to operate at the sub-6 GHz 5G spectrum with appropriate impedance bandwidth. The illustrated BPF is modeled and analyzed using computer simulation technology (CST) tool and is fabricated on a Rogers RO3010 substrate with a relative dielectric constant ( $\epsilon_r$ ) of 10.2 and a very small size of 9.5x6x1.27 mm<sup>3</sup>. The simulated and measured results show a good agreement.

<input type="checkbox"/>	510	Design of bandpass tunable filter for green flexible RF for 5G <i>Open Access</i>	Al-Yasir, Y.I.A., Parchin, N.O., Alabdallah, A., (...), Abd-Alhameed, R.A., Noras, J.M.	2019	IEEE 5G World Forum, 5GWF 2019 - Conference Proceedings 8911719, pp. 194-198	11
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This paper proposes a compact three-pole planar tunable bandpass filter (BPF) covering the sub-6 GHz spectrum for 5G wireless communications. The microstrip BPF utilizes three open-loop ring resonators with 50  $\Omega$  transmission line impedances for input/output terminals. The coupling coefficients between the adjacent resonators and the external quality factors are controlled to resonate the designed filter at 3.5 GHz with third-order bandpass Butterworth characteristics. The varactor diode and biasing circuit are modelled to tune the resonant frequency in the desirable band. The filter is implemented and measured on a Rogers RO3010 substrate with a relative dielectric constant  $\epsilon_r= 10.2$  and a compact size of 17x5x1.27 mm<sup>3</sup>, and is optimized and simulated using computer simulation technology (CST) tool. Good agreement is achieved between the simulated and measured results.

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<input type="checkbox"/>	511	Thorough evaluation of TIMIT database speaker identification performance under noise with and without the G.712 type handset	Al-Kaltakchi, M.T.S., Al-Nima, R.R.O., Abdullah, M.A.M., Abdullah, H.N.	2019	International Journal of Speech Technology 22(3), pp. 851-863	14
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In this work, a speaker identification system is proposed which employs two feature extraction models, namely: the power normalized cepstral coefficients and the mel frequency cepstral coefficients. Both features are subjected to acoustic modeling using a Gaussian mixture model–universal background model. The purpose of this work is to provide a thorough evaluation of the effect of different types of noise on the speaker identification accuracy (SIA) and thereby providing benchmark figures for future comparative studies. In particular, the additive white Gaussian noise and eight non-stationary noise types (with and without the G.712 type handset) corresponding to various signal to noise ratios are tested. Fusion strategies are also employed using late fusion methods: maximum, weighted sum, and mean fusion. The measurements of randomly selected 120 speakers from the TIMIT database are employed and the SIA is used to measure the system performance. The weighted sum fusion resulted in the best performance in terms of SIA with noisy speech. The proposed model given in this work and its related analysis paves the way for further work in this important area.

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| <input type="checkbox"/> | 512 | The comparison of the total body mass between pre and postmenopausal women in Mosul city<br><i>Open Access</i> | Majeed, K.G.,<br>Thanon, H.A.,<br>Dhannoon, B.I.,<br>Fathi, H.B. | 2019 | Iraqi Journal of Science<br>60(6), pp. 1197-1205 | 4 |
|--------------------------|-----|--|--|------|--|---|

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In this research, we discussed bone density for women taking into consideration the method of research, we measure the total body mass of women in premenopausal and comparing it with postmenopausal, since the amount of the bone mineral content and bone mineral density, fat mass and lean mass. A cross sectional study conducted at DXA laboratory, Physiology Department, College of Medicine, University of Ninevah, Mosul-Iraq from Jan. 1 - Dec. 31, 2013. Since 174 healthy women recruited from reviewing of college medical academic center. They were divided into two groups: Pre menopause group (n = 42) and post menopause group (n= 130). Detailed anthropometric data were gathered from study subjects. The mean age SD of pre-menopause group was (43.37 7.49) year while the mean age SD postmenopausal group (63.63 9.23) years. The T-score, Z-score, Bone Mineral Density (BMD), Bone Mineral Content (BMC), Fat Mass and Lean Mass were measured in the supine position by the use of DXA bone densitometer scanner type (STRATOS) from (DMS) group, France. Bone Mineral Content (BMC) was significantly lower in arm, rib, and thoracic spines. Bone Mineral Density (BMD) in arm, rib, leg and total were significantly low in postmenopausal women. Non-significant differences were noticed between both groups for lean mass. Postmenopausal women having more fat mass than pre menopause group. Both T-score and Z-score for pre menopause and post menopause groups were from class of osteopenia, but it was significantly lower in post menopause group (p-value =0.001, 0.008 respectively). Postmenopausal women were at higher risk of osteoporosis due to lowered Bone Mineral Density, T & Z scores.

<input type="checkbox"/> 513	Real-time Environmental Control System for Disability Access under Node-MCU Platform <i>Open Access</i>	Zedan, M.J.M., Al-Jbaar, M.A., Abdullah, M.A.M.	2019	IOP Conference Series: Materials Science and Engineering 518(4),042011	2
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An Environmental Control Unit (ECU) is an electronic device that helps a person to perform daily tasks and control the surrounding environment. Hand gesture can be employed to perform this purpose via special wearable gloves. In this paper, we propose a low-cost Human-Computer Interaction (HCI) method using Node MCU platform. Finger and palm movement is captured based on the output of a flex and accelerometer sensors. The output voltage of the flex sensor represents the degree of a finger's bending while the output of the accelerometer determines the 3-axis of palm movement in order to operate up to three devices. This glove is connected to an Internet-of-Thing (IoT) platform that supports wireless communication through a web server in order to make the ECU wire-free and hence increase the portability of the system. Comparisons with the related work confirm that the proposed system is simple, accurate and easy to implement.

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<input type="checkbox"/>	514	Experimental Measurements and Analysis of In-Band Full-Duplex Interference for Underwater Acoustic Communication Systems	Healy, C.T., Jebur, B.A., Tsimenidis, C.C., Neasham, J., Chambers, J.	2019	OCEANS 2019 - Marseille, OCEANS Marseille 2019 2019-June,8867454	6
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This paper investigates the characteristics of the self-interference (SI) channel in an underwater acoustic communications (UAC) system operating under the Full-Duplex (FD) mode of operation. The theoretical doubling of throughput offered by FD operation is particularly attractive in UAC systems due to the severely band-limited nature of the channels encountered. Experimental measurements are presented for a shallow-water environment for a number of selected SI channel geometries, signal formats and receiver configurations. Presented results are comprised of channel impulse responses extracted by means of correlation processing of chirp-based channel soundings. Based on the measurements, the SI channel is characterised and modeled, an important step towards understanding the challenges involved in realising a practical UAC system capable of FD operation.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 515	In-band full-duplex interference for underwater acoustic communication systems	Jebur, B.A., Healy, C.T., Tsimenidis, C.C., Neasham, J., Chambers, J.	2019	OCEANS 2019 - Marseille, OCEANS Marseille 2019 2019-June,8867207	13

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This work presents an adaptive self-interference cancellation (SIC) method for in-band full-duplex underwater acoustic (IBFD-UWA) systems along with a model for the self-interference (SI) for shallow-water acoustic channels. The proposed system utilizes orthogonal frequency division multiplexing with quadrature phase shift keying modulation to exchange information between two nodes operating in IBFD mode. The proposed adaptive SIC scheme employs the normalized least-mean-square (NLMS) algorithm to suppress the SI signal and avoid saturating the local analog-to-digital (ADC) converter. Unlike existing research works, we investigate the effect of imperfect detection of the signal of interest on the ability of the SIC to diminish the SI signal. We provide experimental results to support the SI model developed and simulation results to demonstrate the ability of the proposed adaptive SIC scheme to mitigate the SI signal to approximately the level of the ambient noise.

<input type="checkbox"/> 516	A Method for Increasing the Throughput of IDMA Uplink System	Al-Adwany, M.A.S., Th Hamdoon, H.	2019	2019 IEEE International Conference on Automatic Control and Intelligent Systems, I2CACIS 2019 - Proceedings 8825022, pp. 336-338	0
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In this paper, a new method has been proposed to increase the throughput of the interleave division multiple access (IDMA) uplink system. To achieve this goal, a modified forward error correcting (FEC) code is developed. The numerical results show significant enhancement in the system throughput up to 1.75 bits/chip if compared with the 1.44 bits/chip limit that was achieved in the literature. So, the system throughput is enhanced by 21.5 %.

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<input type="checkbox"/> 517	Optimal PID controller of a brushless DC motor using genetic algorithm <i>Open Access</i>	Ibrahim, M.A., Mahmood, A.K., Sultan, N.S.	2019 International Journal of Power Electronics and Drive Systems 10(2), pp. 822-830	37
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Brushless DC (BLDC) motor is commonly employed for many industrial applications due to their high torque and efficiency. This article produces an optimal designed controller of Brushless DC motor speed control depending on the genetic algorithm (GA). The optimization method is used for searching of the ideal Proportional–Integral–Derivative (PID) factors. The controller design methods of brushless DC motor includes three kinds: Trial and error PID design, auto-tuning PID design and genetic algorithm based controller design. A PID controller is utilizing by conducted Integral absolute error criterion (IAE) and integral squared error (ISE) error criterion for BLDC motor control system. A GA-PID controller is designed to enhance the system performance by means of genetic algorithm. PID controller coefficients ( $K_p$ , and  $K_d$ ) are calculated by GA to produce optimal PID as hybrid PID with GA controller. The closed loop speed response of PID controller is experimented for IAE and ISE error criteria. The suggested controller GA\_PID is planned, modeled and simulated by MATLAB/software program. A comparison output system performance monitored for every controller schemes. The results display that the time characteristics performance of GA-PID controller based on ISE objective function has the optimal performance (rise time, settling time, percentage overshoot) with other techniques.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 518	A cellular base station antenna configuration for variable coverage <i>Open Access</i>	Shakeeb, A.-R., Sayidmarie, K.H.	2019	International Journal of Electrical and Computer Engineering 9(3), pp. 1887-1893	4

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The field coverage offered by the base station antenna in GSM systems influences the reception and interference performances. The coverage can be varied by scanning the mainbeam direction or varying the shape of the radiation pattern. In cellular system applications, a simple technique is desirable to achieve this goal. A simple technique to vary the coverage of cellular base station is investigated. The technique uses two conventional antennas tilted by a certain angle and fed by the same signal but at variable amplitudes. It is demonstrated that the field across one half of the covered sector can be gradually increased while that at the other half is reduced by varying the excitations of the two antenna elements. This can be deployed in a simple electronic means in response to the changing scenario rather readjusting the direction of the base station antenna.

<input type="checkbox"/> 519	Design and evaluation of DNU-tolerant registers for resilient architectural state storage	Alghareb, F.S., Demara, R.F.	2019	Proceedings of the ACM Great Lakes Symposium on VLSI, GLSVLSI 3318023, pp. 303-306	9
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In this work, we aim to maintain the correct execution of instructions in the pipeline stages. To achieve that, the integrity for the data computed in registers during execution should be maintained via protecting the susceptible registers. Thus, we present a Double Node Upset Resilient Flip-Flop (DNUR-FF) circuit that can tolerate double errors while incurring low area and power overheads. We deploy the proposed soft-error resilient register at higher level to replace the most vulnerable registers in large-scale pipeline processors. The experimental results validate the robustness of our design by delivering superior fault coverage masking (100%) for both SEU and DNU errors. In addition, the proposed design utilizes partial spatial redundancy, and therefore, incurs reduced area overhead (31%) and realizes 58% of PDP improvement compared to Triple Module Redundancy (TMR) approach while delivering high-performance with low complexity and power consumption.

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<input type="checkbox"/>	520	Performance analysis of IEEE 802.11ac based WLAN in wireless communication systems <i>Open Access</i>	Yonis, A.Z.	2019	International Journal of Electrical and Computer Engineering 9(2), pp. 1131-1136	10
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IEEE 802.11ac based wireless local area network (WLAN) is emerging WiFi standard at 5 GHz, it is new gigabit-per-second standard providing premium services. IEEE 802.11ac accomplishes its crude speed increment by pushing on three distinct measurements firstly is more channel holding, expanded from a maximum of 80 MHz up to 160 MHz modes. Secondly, the denser modulation, now using 256-QAM, it has the ability to increase the data rates up to 7 Gbps using an 8x8 multiple input multiple output (MIMO). Finally, it provides high resolution for both narrow and medium bandwidth channels. This work presents a study to improve the performance of IEEE 802.11ac based WLAN system.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	521 Security assessment of internet of things in healthcare environment	Ali, D., Mahmoud, A.	2019	ICCISTA 2019 - IEEE International Conference on Computing and Information Science and Technology and their Applications 2019 8830663	5

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Internet of things is the new generation of the networks that allows interconnected devices detecting, communicating and understand each other. These devices include: gadgets, sensors, etc. Internet of Things Network requires Security Assessment. This paper deals with security assessment, detection and remediation of attacks on IoT networks through the presence and absence of AODV delay defense and AODV black hole defense. The improving of the data reception rate was 7.5% and 12.67% respectively, while improving data destruction rate reduction 7.3% and 12.7% respectively.

<input type="checkbox"/>	522 Incremental Conductance Algorithm Optimization for a Photovoltaic System with Fast Response under Fast-Varying of Solar Power	Abd, H.M., Abdo, E.A., Jasim, A.M., Sabaawi, A.M.A.	2019	2019 10th International Renewable Energy Congress, IREC 2019 8754600	1
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In order to provide full utilization of photovoltaic (PV) output power under fast changing solar irradiation with less power losses, a maximum power (MP) point tracking (PT) algorithm with a fast-converging is employed to ensure the fast response of the photovoltaic (PV) system. One of the most efficient techniques used is the incremental conductance (INC) technique due to its adaptability to the rapidly varying atmospheric conditions and accuracy at steady state. In this work, incremental conductance (INC) MPPT algorithm is optimized, where INC MPPT algorithm has been adjusted to be suitable for varying weather conditions. The proposed algorithm has increased the efficiency and the speed of convergence for the incremental conductance (INC) MPPT algorithm.

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<input type="checkbox"/>	523	Non-Volatile Spintronic Flip-Flop Design for Energy-Efficient SEU and DNU Resilience	Alghareb, F.S., Zand, R., Demara, R.F.	2019	IEEE Transactions on Magnetics 55(3),8603998	18
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In this paper, low-energy radiation-hardening approaches are proposed to develop non-volatile (NV) flip-flop (FF) circuits using spintronic devices. In particular, spin Hall effect magnetic tunnel junctions are used to design a radiation-hardened NV-latch that is proposed to be utilized as a shadow latch to maintain the data during the standby mode when the circuit is power-gated. Moreover, soft-error resilient complementary metal-oxide-semiconductor-based latching circuits are designed to be leveraged as master and slave latches in the NVFF structure. The proposed hardening techniques are based on using feedback loops and clock-gating Muller C-elements, as well as increasing the charge capacity of the vulnerable nodes. The circuit simulations indicate that the proposed single-event upset and double node upset resilient latching circuits can achieve at least 81% and 24% power-delay product improvement, respectively, while incurring comparable area overhead compared to the previous energy-efficient radiation-hardened latch designs. Finally, the proposed latching circuits are combined to develop four radiation-hardened NVFF designs. The results obtained show that, using the proposed NV latching circuit as a shadow latch can result in two orders of magnitude reduction in energy consumption compared to the FF circuits with an NV master latch. In addition, the proposed latches achieve favorable tradeoffs in terms of minimized performance overheads and maximized robustness (100%) of soft fault coverage to single and double upsets. Thus, the proposed NVFFs can be employed within logic datapaths to ensure data integrity as a potential mainstream solution for aerospace and avionic nanoelectronics.

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<input type="checkbox"/>	524	Obtaining wide steered nulls in linear array patterns by optimizing the locations of two edge elements	Mohammed, J.R.	2019	AEU - International Journal of Electronics and Communications 101, pp. 145-151	19
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In this paper, a simple method for null steering is investigated by optimally changing the locations of the last two edge elements of symmetrical uniformly spaced linear arrays. Unlike the existing null steering methods, the amplitude and the phase excitations of all elements including the two edge elements in the proposed array are assumed to be constant. Thus the steered nulls in the proposed array neither require the amplitude weighting control nor the phase weighting control of the element excitations. This feature is of a great importance in practice to avoid null deviation due to the quantization errors that associated with digital attenuators and/or digital phase shifters. The proposed method is applied to a linear array consisting of 30 elements and a number of nulls has been introduced each with width equal to 0.02 in  $u$ -space and depth about  $-50$  dB. Results show that the performance of the proposed array in terms of interference rejection is comparable to that of the fully non-uniform spaced arrays. Furthermore, by selecting only a small number of edge elements to be movable instead of all array elements, the proposed array enjoys lower cost, lesser complexity, and smaller computational time.

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<input type="checkbox"/>	525	A proposed model for designing E-learning courses	Alasaady, M.T., Saied, M.G., Malallah, F.L.	2019	Journal of Theoretical and Applied Information Technology 97(4), pp. 1234-1245	4
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E-learning has become an effective component in most educational institutions; for this reason, there is a clear need to develop general principles and standards through a systematic model to design e-learning systems. There are many models of e-learning courses design, but they are differentiated in quality, in most of these models there is a gap between the needs of system developers, content designers, lecturers, and students. In this research, a new model was proposed to design e-learning courses in an attempt to bridge this gap. The proposed model carries out the analysis, design, and development of courses for e-learning systems and its application, then how to evaluate the performance of this system and its usability. A case study was developed by the stages of this proposed model and using Moodle platform, it illustrates the creating courses process, study plans, lessons for each semester, and the analysis, design, and creation of scientific content. where the scientific content was designed based on the educational approach used by Iraqi universities.

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<input type="checkbox"/>	526 Automatic Brain Tumour Segmentation using fully Convolution Network and Transfer Learning	Alkassar, S., Abdullah, M.A.M., Jebur, B.A.	2019	2nd International Conference on Electrical, Communication, Computer, Power and Control Engineering, ICECCPCE 2019 9072895, pp. 188-192	15
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Brain tumor segmentation is a challenging issue due to the heterogeneous appearance, shape, and intensity of tumors. In this paper, we present an automatic method for brain tumor segmentation in Magnetic Resonance Imaging (MRI) using deep neural networks (DNN). Transfer learning and fully convolution network (FCN) have been utilized to achieve robust tumor segmentation using VGG-16 network. The proposed architecture of the VGG-16 network includes the encoder and decoder networks with a classification layer to generate the pixel-wise classification. Comparison results demonstrate that the proposed method achieved state-of-the-art results with a global accuracy of 0.97785 and 0.89 dice score in terms of whole tumor segmentation on images from the BRATS2015 database.

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<input type="checkbox"/> 527	Implementation of ECG Classification Xilinx System Generator	Saadi, O.N., Abdulkader, Z.N., Abdul-Jabbar, J.M.	2019	2nd International Conference on Electrical, Communication, Computer, Power and Control Engineering, ICECCPCE 2019 9072737, pp. 1-6	6
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this paper presents a method to implement an Electrocardiogram (ECG)-neuro classifier on FPGA kit using Xilinx System Generator blocks. An approximate linear phase bi-reciprocal lattice wave digital filter (BLWDF) is used for QRS complex extraction. The output of the BLWDF is fed into a neuro classifier system. Various ECG signals from the European ST-T and QT databases are then classified into four classes of human heart diseases: Normal, Right Bundle Branch Block (RBBB), Left Ventricular Hypertrophy (LVH), Left Bundle Branch Block (LBBB). Neural network training process is accomplished using Matlab toolbox to obtain the weights and bias values. The classifier is then implemented on a Spartan6 Xilinx Field Programmable Gate Array (FPGA) device. A feed forward neural network with two layers and four neurons with an activation function of the type "tan-sigmoid" is modeled using Xilinx System Generator blocks. The models are then translated into Very High Speed IC Hardware Description Language (VHDL) to measure the usage percentage of the chip resources and to calculate the maximum operating frequency.

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<input type="checkbox"/>	528	A Printed Monopole Antenna with Radiation Pattern Reconfiguration	Najjaw, M.S., Sayidmarie, K.H.	2019	2nd International Conference on Electrical, Communication, Computer, Power and Control Engineering, ICECCPCE 2019 9072739, pp. 209-214	2
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This paper presents the design and analysis of a pattern reconfigurable monopole antenna intended for WLAN applications. A parasitic element that is connected to the ground plane by a PIN diode is placed parallel to the radiating monopole. When the diode is switched between the ON and OFF states, the function of the parasitic element changes from a reflector to a director, thus offering the capability to control the direction of the main beam. The two states of the reconfigurable antenna can also be changed at the initial design stage by choosing the distance between the monopole and the parasitic element. The simulations using the CST software proved the feasibility of the proposed antenna.

<input type="checkbox"/>	529	Hardware/software co-design for a parallel three-dimensional bresenham's algorithm	Ismae, S., Tareq, O., Qassim, Y.T.	2019	International Journal of Electrical and Computer Engineering 9(1), pp. 148-156	6
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Line plotting is the one of the basic operations in the scan conversion. Bresenham's line drawing algorithm is an efficient and high popular algorithm utilized for this purpose. This algorithm starts from one end-point of the line to the other end-point by calculating one point at each step. As a result, the calculation time for all the points depends on the length of the line thereby the number of the total points presented. In this paper, we developed an approach to speed up the Bresenham algorithm by partitioning each line into number of segments, find the points belong to those segments and drawing them simultaneously to formulate the main line. As a result, the higher number of segments generated, the faster the points are calculated. By employing 32 cores in the Field Programmable Gate Array, a line of length 992 points is formulated in 0.31 $\mu$ s only. The complete system is implemented using Zybo board that contains the Xilinx Zynq-7000 chip (Z-7010).

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	530 Real-time experimental demonstration of DSP-enabled soft-ROADMs with multi-level flexible add/drop functions for cloud access networks <i>Open Access</i>	Al-Rawachy, E., Giddings, R.P., Tang, J.M.	2019	Optics Express 27(1), pp. 16-33	6

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Making use of digital filtering, drop RF signal-driven intensity modulation and passive optical coupling, DSP-enabled flexible ROADMs, termed soft-ROADMs, are experimentally demonstrated in real-time, which are free from both optical filters and O-E-O conversions and are inherently transparent to major network design characteristics. In a 4-channel IMDD optical network node incorporating FPGA-based orthogonal digital filter multiplexing, fully real-time soft-ROADM dynamic add and drop operations at both sub-wavelength and spectrally overlapped orthogonal sub-band levels are extensively, experimentally explored, along with their performance robustness against condition variations of practical networks associated with low-cost optical/electrical components. It is shown that the soft-ROADMs introduce optical power penalties as low as 1.4dB for add operation and 2dB for drop operation. For received optical powers fixed at -10dBm, the add operation can tolerate a differential optical input dynamic range of 6.5dB (1.5dB) for sub-wavelength (sub-band) add operation. On the other hand, robust drop operation performances are obtainable over a ~5dB (16°) drop RF signal amplitude (phase) variation range. This work is a significant milestone in demonstrating the technical feasibility of utilising soft-ROADMs to create a programmable networking environment capable of addressing elastic 5G slicing and the SDN paradigm.

<input type="checkbox"/>	531 Health effects of Ultra High Magnetic fields (MRI as Case Study) <i>Open Access</i>	Ali, D.M.	2019	International Journal of Computing 7(2), pp. 21-27	1
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One of the most rapidly advancing available imaging techniques is Magnetic resonance imaging (MRI). This technique has many side effects can be digested in to main categories: The first is the High Magnetic field effects: these effects contain personal safeties, electrical induced voltage, forces effects of any none ferromagnetic implant material. The second is the High power Electromagnetic Signal effects, which is needed for atoms Excitation. The useful tools of evaluation such side effect is Specific Absorption Rate (SAR) and the increasing of the body temperature. In this paper, the first issue of high magnetic field was discussed; simulation of high magnetic time variant achieved using specialized tools, while the non-variant time magnetic effect is out of our scope. These tools used to evaluate the satisfied requirement levels of the magnetic field characteristics with the aid of some useful software such COMSOL Multiphysics and Matlab. The simulation results show a good agreement with the empirical formulas used to calculate the maximum rate of magnetic field charges. New assumption adopted to calculate the overall magnetic field taking in the account the three magnetic gradient components in X, Y and Z directions The simulation shows that the maximum rate of change in the magnetic field occurs at the edges of the region of interest, while it at lowest level at the isocenter axis. The worst case (more than 50% of the volume beyond the limits) occur at  $T=100$  msec and  $\tau=140$  Micro sec (fast imaging case). The generated E field, on the other hand, increased as we far from the center, where a homogenous model was assumed with some none expectable decreasing at the edges. This degradation in the E filed is clearer in non – homogeneous model due to the boundary condition problem. More studies are required, on the effects of Electromagnetic power used in such equipment such as SAR.

<input type="checkbox"/>	532 FULL-DUPLEX CHANNEL ANALYSIS FOR UNDERWATER ACOUSTIC COMMUNICATIONS	Healy, C., Jebur, B., Tsimenidis, C., Neasham, J., Chambers, J.	2019	Underwater Acoustic Conference and Exhibition Series pp. 251-257	5
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The limited bandwidth available in underwater acoustic communication channels motivate the investigation of multiple access methods that maximize the capacity, such as full-duplex (FD) operation that can approximately double capacity. This paper presents characterization results of the self-interference (SI) channel from experimental data obtained by sea trials in the North Sea. Two scenarios are considered, i.e. hard and soft sea bottom with water column depths of 50 m. Initial results indicate that the delay spread of the local reverberation can extend up to 1.5 s before it reaches the noise floor level. This in turn has significant implications on the required hardware complexity of the SI mitigation methods based on adaptive filter echo cancellation, which will require tens of thousands of filter taps to deal with this delay spread range and prolonged training periods. Furthermore, the achievable range of the FD-based communication links will be affected by the levels of SI present in these channels, therefore, the results and channel modelling presented in this paper will be useful to FD modem designers.

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<input type="checkbox"/>	533	Evolution of millimeter-wave communications toward next generation in wireless technologies <i>Open Access</i>	Yonis, A.Z.	2019	Telkomnika (Telecommunication Computing Electronics and Control) 17(6), pp. 3161-3167	2
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Next generation in wireless communication systems being deployed in the world, 5G/6G mobile and wireless communication technologies has been widely studied. This work clarifies that Millimeter-Wave (mm-Wave) is in its early stages and will be driven by consumers who keep on desire higher information rates for the consumption of media. Millimeter-Wave innovation represents for next generation cellular technology and includes a wide range of advanced features which make next innovation most dominant technology in near future, these abilities incorporate high achievable information rates in addition to lower delays and constant connectivity on wireless devices.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 534	Efficacy of deferasirox median dose of 30 mg/kg/day in pediatric patients with $\beta$ -thalassemia major during one year follows-up therapy	Al-Hafidh, N.M., Younis, M.S.	2019	International Journal of Pharmaceutical Quality Assurance 10(3), pp. 69-72	0

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Objective: To assess the efficacy of deferasirox median dose of 30 mg /kg /day in pediatric patients with  $\beta$ -thalassemia major during one year of follow up Patients and methods: This study was conducted at Ibn Al Atheer center of thalassemia, Mosul city, Iraq, during the period from 3rd of February 2013 to 2nd of February 2014. Serum ferritin was measured at baseline and four weekly intervals thereafter among 49 transfusion-dependent children with  $\beta$ -thalassemia major, who were treated with a median deferasirox dose of 30 mg /kg /day. Results: No statistically significant difference was detected between the mean serum ferritin level at baseline ( $2189.39 \pm 85.7$ ) ng/mL and its mean value at four-weekly intervals during forty-eight weeks of deferasirox therapy. There was significant ( $p = 0.027$ ) improvement of serum ferritin at 52 weeks reading ( $1750.6 \pm 202.8$  ng/mL) compared to baseline reading. The percentage of patients with baseline serum ferritin levels of  $>2,500$  ng/ml was 32.7% (16/49), which increased significantly ( $p=0.000$ ) to 65% at four weeks of therapy, and ranged between 32.1%-46.2 % in the remaining readings. Conclusions: There was no significant reduction of serum ferritin during the initial forty-eight weeks of deferasirox median dose of 30 mg /kg /day among patients with baseline mean serum ferritin above 2000 ng /ml.

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Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 535 Estimation of segmental and total body fat in healthy adults: Comparison of bio-electric impedance analysis and dual energy X-ray absorptiometry   [Sağlıklı yetişkinlerde segmental ve total vücut yağı tahmini: Biyoelektrik impedans analizi ve dual enerji x-ray absorpsiyometrinin karşılaştırılması] <i>Open Access</i>	Majeed, K.G., Sulyman, S.A.A., Fathi, H.B.	2019	Turkish Journal of Endocrinology and Metabolism 23(4), pp. 240-247	4

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Objective: Bioelectric impedance analysis (BIA) and dual energy X-ray absorptiometry (DEXA) are two commonly used techniques, but each has its own pros and cons. To assess the accuracy of BIA in comparison with DEXA in the assessment of total and segmental fat mass and fat percentage. Material and Methods: Fifty-four healthy adults (24 men and 30 women) participated in this study. The total fat mass, extremity fat mass, and trunk fat mass with the respective percentages were assessed by both DEXA and BIA techniques. Results: BIA technique significantly underestimated total and segmental fat masses and percentages ( $p < 0.0001$ ) in comparison with DEXA. The average differences were as follows: total fat mass,  $5.76 \pm 1.04$  kg; total fat mass percentage,  $10.56 \pm 1.43$ ; extremity fat mass,  $3.28 \pm 0.54$  kg; extremity fat mass percentage,  $10.72 \pm 1.85$ ; trunk fat mass,  $3.04 \pm 0.62$  kg; and trunk fat mass percentage,  $9.83 \pm 1.24$ . The highest correlation between BIA and DEXA was in the estimation of total fat mass percentage (0.93) and the lowest was in the estimation of extremity fat mass (0.72). Conclusion: BIA underestimates fat composition, thus the difference should be considered during the evaluation of a client.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	536 Antenna for Ultra-Wideband Applications with Non-Uniform Defected Ground Plane and Offset Aperture-Coupled Cylindrical Dielectric Resonators <i>Open Access</i>	Zebiri, C., Obeidat, H.A., Abd-Alhameed, R.A., (...), Rodriguez, J., Sayidmarie, K.H.	2019	IEEE Access 7,8884636, pp. 166776-166787	11

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A new compact Cylindrical Dielectric Resonator Antenna (CDRA) with a defected ground for ultra-wideband applications is presented. The structure is based on two cylindrical dielectric resonators asymmetrically located with respect to the center of an offset rectangular coupling aperture, with consideration of three and four Dielectric Resonators (DR). The resonant modes generated by the defected ground are studied and investigated. A parametric optimization study of the antenna design has been carried out to determine the optimal dimensions of the defected ground plane, resulting in an impedance bandwidth of over 133% that covers the frequency band from 3.6 GHz to 18.0 GHz. A power gain of about 7.9 dBi has been achieved. Design details and measured and simulated results are presented and discussed.

<input type="checkbox"/>	537 5G Downlink throughput enhancement by beam consolidation at vacant traffic <i>Open Access</i>	Janaby, A.	2019	Journal of Communications Software and Systems 15(4), pp. 311-316	3
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The 3GPP release for 5G (R15) assigns each User Equipment (UE) a radio beam by employing Massive Multi User Multiple-Input Multiple-Output (MU-MIMO) technology. Each beam carries, at the downlink, a data with a rate according to the Modulation and Coding Scheme (MCS) assigned by the base station (BS). For the limited existence of active UEs and during vacant traffic, all UEs are not active or standby, the assigned beams will be transmitted, but not to any UE. This paper proposes a new scheme that consolidates vacant beams of inactive UEs, to the adjacent beam of the active UE or UE at the cell edge to duplicate the bandwidth of the new beam. The proposed scheme increases the level of desired MCS to a higher scheme (e.g. from Quadrature Phase Shift Keying (QPSK) to Quadrature Amplitude Modulation (QAM)), and hence enhances the spectral efficiency (SE) of the 5G mobile networks. The BS consolidates (combines) multiple radio beams along with the assigned beam during vacant traffic. More than two beams are consolidated in particular to the active UE to increase the bit rate by assigning higher MCS. The simulation evaluation depicts that the performance of beams consolidation provides a gain of 3.5 dB above than the state before beam consolidation. Moreover, more than 40 % improvement in UE throughput is achieved.

<input type="checkbox"/>	538	Integrated antenna technique for cancelling the self-interference signal in full-duplex communication <i>Open Access</i>	Jasim, A.A., Sayidmarie, K.H., Abd-Alhameed, R.A., Ali, A.	2019	Progress In Electromagnetics Research C 97, pp. 43-55	2
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In this paper, a novel passive antenna cancellation technique for a full-duplex system is presented. This includes three patch antennas with a developed coupler that are constructed and integrated with the feed network to reduce the self-interference signal without the need for other components, thus achieving a complete antenna cancellation method. Computer Simulation Technology (CST) microwave studio is utilized to simulate the design model. A prototype was fabricated and tested practically to validate the proposed design. The computed results are compared with measurements. The proposed technique provides up to 68 dB cancellation at the operating frequency 2.45 GHz, and this decreases to 40 dB at 70 MHz bandwidth, and to 36 dB at 100 MHz bandwidth.

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| <input type="checkbox"/> | 539 Investigation of indoor propagation of WLAN signals<br><i>Open Access</i> | Salim, M.S.,<br>Sayidmarie, K.H.,<br>Aboud, A.H. | 2019 | Indonesian Journal of<br>Electrical Engineering<br>and Computer Science<br>16(3), pp. 1356-1363 | 4 |
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The propagation of radio waves inside a typical university building is investigated by simulation and measurements. The Line of sight (LOS) and Obstructed Line of sight (OLOS) propagation scenarios were considered. The received power from a WLAN access point operating at 2.45GHz was determined from the simulations and measurements at various positions, orientations, and heights of the Tx and Rx antennas. The path loss exponents were estimated from the obtained simulation and measurement results of the received power variation with distance. The obtained path loss exponent values were found between 1.15-1.63 for LOS propagation and 2.14-2.55 for OLOS.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	540 Simulation and performance evaluation of non-orthogonal IDMA system for future wireless networks	Al-Adwany, Hamdoon, H.	2019	Journal of Engineering Science and Technology 14(4), pp. 1835-1850	0

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Multiple access techniques nowadays are considered a hot topic for research for the Fifth-Generation (5G) systems. However, with orthogonal multiple access, it is not possible to achieve the sum capacity of multi-user communications. Non-Orthogonal Multiple Access (NOMA) is imagined to be a serious solution for 5G wireless networks. Recently, a new non-orthogonal multiple access technology has been suggested, which is called Interleave Division Multiple Access (IDMA), where the number of users are greater than the spreading length and user load could be greater than one. IDMA is a promising method to improve spectral efficiency and has attracted much interest from both industrial and academic fields in recent years. In this paper, the performance of the IDMA system is studied by constructing different theory-based exact simulators. The effect of different system parameters such as modulation schemes and channel coding/spreading conditions are considered, where flat fading channels are assumed. The contribution of this paper lies on designing low-cost Chip-by-Chip (CBC) iterative receivers; that is the Chip-by-Chip Successive Interference Canceller (CBCSIC), and the CHIP by Chip Parallel Interference Canceller (CBCPIC) to achieve high system throughput. The system design has been achieved using SIMULINK. The simulation results show that the IDMA scheme is advantageous in terms of both spectral efficiency and bit error rate performance; a high throughput up to 6 bits/chip has been achieved, which make IDMA a promising candidate for 5G wireless networks. In addition, the numerical results show that the CBCSIC receiver manifests better performance compared with the CBCPIC receiver.

<input type="checkbox"/>	541 Spectrophotometric assay of salbutamol sulphate in pharmaceutical preparations by coupling with diazotized p-bromoaniline <i>Open Access</i>	Hamoudi, T.A.	2019	Baghdad Science Journal 16(3), pp. 610-615	4
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In this research, salbutamol sulphate (SAS) has been determined by a simple, rapid and sensitive spectrophotometric method. Salbutamol sulphate in this method is based on the coupling of SAS with diazotized *p*- bromoaniline reagent in alkaline medium of Triton X-100 (Tx) to form an orange azo dye which is stable and water-soluble. The azo dye is exhibiting maximum absorption at 441 nm. A 10 - 800  $\mu\text{g}$  of SAS is obeyed of Beer's law in a final volume of 20 ml, i.e., 0.5- 40 ppm with  $\epsilon$ , the molar absorptivity of 48558 L.mol<sup>-1</sup>.cm<sup>-1</sup> and Sandell's sensitivity index of 0.01188  $\mu\text{g.cm}^{-2}$ . This new method does not need solvent extraction or temperature control which is well applied to determine SAS in different types of pharmaceutical preparations.

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<input type="checkbox"/>	542	Hand detection and segmentation using smart path tracking fingers as features and expert system classifier <i>Open Access</i>	Yasen, K.N., Malallah, F.L., Abdulrazak, L.F., (...), Khmag, A., Shareef, B.T.	2019	International Journal of Electrical and Computer Engineering 9(6), pp. 5277-5285	4
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Nowadays, hand gesture recognition (HGR) is getting popular due to several applications such as remote based control using a hand, and security for access control. One of the major problems of HGR is the accuracy lacking hand detection and segmentation. In this paper, a new algorithm of hand detection will be presented, which works by tracking fingers smartly based on the planned path. The tracking operation is accomplished by assuming a point at the top middle of the image containing the object then this point slides few pixels down to be a reference point then branching into two slopes: left and right. On these slopes, fingers will be scanned to extract flip-numbers, which are considered as features to be classified accordingly by utilizing the expert system. Experiments were conducted using 100 images for 10-individual containing hand inside a cluttered background by using Dataset of Leap Motion and Microsoft Kinect hand acquisitions. The recorded accuracy is depended on the complexity of the Flip-Number setting, which is achieved 96%, 84% and 81% in case 6, 7 and 8 Flip\_Numbers respectively, in which this result reflects a high level of finite accuracy in comparing with existing techniques.

<input type="checkbox"/>	543	Antennas for emerging 5g systems <i>Open Access</i>	Sayidmarie, K.H., McEwan, N.J., Excell, P.S., Abd- Alhameed, R.A., See, C.H.	2019	International Journal of Antennas and Propagation 2019,9290210	7
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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	544 Performance Analysis of Cognitive Clustered M2M Random Networks with Joint User and Machine Device Selection <i>Open Access</i>	Abdullah, M.A.M., Abdullah, Z., Chen, G., Tang, J., Chambers, J.	2019	IEEE Access 7,8744201, pp. 83515- 83525	7

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In this paper, a machine-to-machine (M2M) communication system is proposed with joint M2M and cellular user equipment (CUE) device selection schemes to decrease the outage probability of the system. The machine devices and CUEs are positioned randomly according to a binomial point process (BPP), and two novel ordering metrics are proposed for the joint selection scheme: one based on the locations of the M2M devices and the other based on instantaneous channel gains. The simulation results confirm that the proposed selection scheme attains a significant reduction in the outage probability for M2M networks while limiting the interference to the base station (BS) by a delimited threshold. A hybrid-duplex BS is employed to switch between a half-duplex (HD) and a full-duplex (FD) to attain the best performance corresponding to various levels of residual self-interference. The closed-form formulas of the outage probability are derived for each of these ordering policies corresponding to different path loss exponents, and the analytical results are verified through Monte Carlo simulations. The proposed model and its related analysis is given in this paper lead the way for further work in the 5G Internet of Things (IoT) area.

<input type="checkbox"/>	545 EFFICACY OF INTERRUPTED AND MODIFIED DEFERASIROX DOSE AMONG PAEDIATRIC PATIENTS WITH B-THALASSEMIA MAJOR AND HIGH ALANINE AMINOTRANSFERASE LEVEL	Hafidh, N.M.A.L.	2019	Journal of Ayub Medical College 31(2), pp. 182-184	0
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Background: Abnormal liver function tests lead to interruptions of Deferasirox therapy. The aim of this study is to assess the efficacy of deferasirox dose 30 mg/kg/day in maintaining cardiac protective level of serum ferritin of <2500 ng/ml among patients who received interrupted and modified doses. Methods: A retrospective cohort study was conducted in Ibn Al Atheer paediatric hospital in Mosul city, Iraq, utilizing the monthly reading of serum ferritin level during the period started in February 2013 to march 2014 using documented patients' records. Group A, patients included thirty-five patients with  $\beta$ -thalassemia major whose Deferasirox dose of 30 mg/kg/day was interrupted and modified due to  $\geq 5$ -fold raise in alanine aminotransferase during any month of the study period. Compared group B patients included 40 children who received constant median deferasirox dose 30 mg/kg/day throughout one year of study period. Serum ferritin and alanine aminotransferase levels were routinely analysed every month among those patients. Results: Interrupted and modified Deferasirox dose of 30 mg/kg/day significantly ( $p=0.000$ ) increase the frequency of having mean serum ferritin >2500 ng/ml, and was associated with 55 times relative risk of having mean serum ferritin >2500 ng/ml compared to group B with steady median deferasirox dose. Conclusions: Interrupted and modified deferasirox dose of 30 mg/kg/day has a significant adverse effect on cardiac protective level of serum ferritin.

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<input type="checkbox"/>	546	An optimum side-lobe reduction method with weight perturbation	Mohammed, J.R.	2019	Journal of Computational Electronics	5
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Article in Press

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Generally, the phased antennas used in radar and communication systems have a certain taper to minimize the side-lobes. However, most tapering methods are inefficient for practical applications because they generally reduce the overall efficiency of the system. It is therefore necessary to develop improved methods for reducing the side-lobes, especially for future fifth-generation (5G) communication systems, whose performance is expected to be drastically limited by interfering signals. Two new methods for obtaining low side-lobes with very little loss in directivity are presented herein. In both methods, the excitations of the elements in a uniformly excited array are perturbed such that the corresponding array factor constructs a specific cancellation pattern. The cancellation pattern in the first method is constructed using a simple analytical procedure, whereas in the second method it is constructed using a more powerful optimization algorithm. The cancellation patterns of both proposed arrays are then independently subtracted from the original, uniformly excited arrays to obtain new array patterns with deep side-lobe reduction. The simulation results show that the directivity differences between the two proposed arrays and the uniformly excited array decrease as the number of array elements is increased; For example, when considering an array with 100 elements, the directivity difference is only 0.1435 dB. Moreover, the proposed arrays can reduce the peak side-lobe levels by more than 27 dB compared with the corresponding uniformly excited arrays.

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<input type="checkbox"/>	547	Numerical Simulation of the Trichel-Pulse in SF <sub>6</sub> at Atmospheric Pressure	Saleh, D.N., Algwari, Q.Th., Amoori, F.Kh.	2019	IEEE Transactions on Plasma Science 47(1),8551279, pp. 427-433	6
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The dynamics of the Trichel current pulses in a dc negative corona in SF<sub>6</sub> at atmospheric pressure in a coaxial electrode configuration has been simulated using a self-consistent 1-D model. The aim of this paper was to clarify the role of the plasma charged particles on the ignition and development of the corona Trichel current pulses during the rise time of the applied voltage. The results showed that, during this time, the corona current consists of three sequential pulses with different amplitudes and the first pulse amplitude is larger than the others. It is found that, during the time of the first current pulse, the accumulation of the positive ions near the negative electrode has a main influence on the behavior of the radial electric field distribution and hence on the slow motion of the negative ions toward the ground electrode. This slow motion of the negative ions could play the key role on the next current pulse appearing.

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<input type="checkbox"/>	548	Layout an inexpensive elliptical polarized productive integrated transceiver	Faisalabdulrazak, L., Malallah, F.L.	2018	Journal of Theoretical and Applied Information Technology 96(23), pp. 7671-7683	0
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This paper reveals a detailed modeling and simulation of active transceiver with elliptical polarization. Simplifying the complexity of merging these components: amplifiers, coupler, patch antenna and power divider using ADS (Advanced Digital System) software to have a system operates at 2.4GHz with less than-11dB return loss. By connecting the proposed transceiver components, it was found that antenna bandwidth was varying from 60o to 70o for both H and E plan. While a 3dB extra power was the gain of designed Active Transceiver above the Passive one.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	549 Microstrip Array Antenna Design with Directivity Enhancement Using Reflector Surface	Abdulqader, A.J., Ali, Y.A.	2018	ICOASE 2018 - International Conference on Advanced Science and Engineering 8548910, pp. 194-199	1

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The goal of this paper is to enhance the Directivity in Microstrip Antenna Array by adding Reflector Surface plane in ground plane. The Microstrip Antenna (MSA) is an antenna that is widely used in microwave waves which has many advantages, however, it represents a low built-in directivity. The suggested antenna array is made by using metamaterial reflecting surface to get the maximum directivity and high gain. In this research, a MSA is designed at 2.1 GHz and maximum directivity and gain are studied. A coaxial probe feeding technique is adopted to feed the antenna array. CST (Computer Simulation Technology) simulation of the suggested single and array antenna shows enhanced the gain, directivity and return loss at the center frequency of 2.1 GHz. At single element antenna, the gain is enhanced from 3.3225 to 6.462db and the directivity from 3.310 to 6.462dbi. Improvement in the performance of the design is achieved by using two elements antenna approach. Further improvement achieved in the work of the design by using four elements antenna approach.

<input type="checkbox"/>	550 Tunable Plasmonic Resonances below Schottky Diode Band-gap Based on Elliptical Nanoantennas	Rasheed, A.A., Sayidmarie, K.H., Mohammed, K.K.	2018	ICOASE 2018 - International Conference on Advanced Science and Engineering 8548841, pp. 513-517	0
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Nanoantennas are suitable components for detection of optical radiation at energies below the bandgap energy of the semiconductor and higher than Schottky barrier of metal/semiconductor interface in photodetectors. Elliptical nanodisk antennas (ENAs) on a Gallium Arsenide (GaAs) substrate are studied to tune the optical response across the near-infrared band. The resonance wavelength, normal field enhancement, and bandwidth of plasmonic resonance are tailored by controlling the size and elliptical aspect ratio. The results are compared with circular nanodisk antennas (CNAs) and ring nanoparticle antennas (RNAs). Silver and gold metal types for nanoantennas are also studied for electric field enhancement, where the Drude model of metals are considered. The surfaces plasmon is proven by comparing with the perfect electric conductor of silver and gold nanoantennas. The obtained results prove that the designed nanoantennas can be used to enhance the operation of photodetectors and solar cells.

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<input type="checkbox"/>	551	A Review of DSP-based enabling technologies for Cloud Access Networks <i>Open Access</i>	Giddings, R., Duan, X., Al-Rawachy, E., Mao, M.	2018	Future Internet 10(11),109	1
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Optical access networks, metro networks and mobile data networks are facing rapidly evolving demands, not only is it essential to satisfy the unyielding need for increased user bandwidths, but future networks must also support the growing wide variation in traffic dynamics and characteristics, due to various emerging technologies, such as cloud-based services, the Internet-of-Things (IoT) and 5G mobile systems, and due to growing trends, such as the proliferation of mobile devices and the rapidly increasing popularity of video-on-demand services. To be cost-effective and commercially sustainable, future optical networks must offer features, such as, dynamic reconfigurability, highly efficient use of network resources, elastic bandwidth provisioning with fine granularity, network sliceability and software defined networking (SDN). To meet these requirements Cloud Access Networks (CANs) are proposed which require a number of flexible, adaptive and reconfigurable networking elements. By exploiting digital signal processing (DSP) we have proposed a digital orthogonal filter-based multiplexing technique to implement CANs with multiplexed, independent optical channels at the wavelength, sub-wavelength, and orthogonal sub-band levels. This paper reviews the overall CAN concept, the operating principles of the various CAN network elements and presents an overview of the research work we have undertaken in order to validate the feasibility of the proposed technologies which includes real-time DSP-based demonstrations.

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<input type="checkbox"/>	552	Multiple models of binary-support-vector-machine for face verification using histogram orientation gradient features	Saeed, M.G.H., Aziz, M.M., Malallah, F.L., Sharef, B.T.	2018	Journal of Theoretical and Applied Information Technology 96(19), pp. 6349-6360	1
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In the past decade, face recognition is considered as an important biometric type due to its wide applications in practice in terms of authentication. The verification process of a human face is not trivial task especially different face poses are captured to be matched. In this paper, an efficient algorithm for face recognition is proposed. In the beginning, the step is starting by capturing the image of the face, then applying some preprocessing operations, after that feature extraction is applied, which is exploiting Histogram Orientation Gradient (HOG) to build the most representative feature vector for each digital image of the face. Next, the feature vector is passed into binary Support Vector Machine classifier (SVM) to construct a binary-SVM model for one individual in order to either accept or reject this individual. In this research, multiple models of binary-SVM are utilized in this methodology, in which for each individual has its own SVM model, which is deemed as the contribution of this paper. Set of experiments have been conducted to estimate the accuracy and performance of the proposed algorithm by using ORL database, which has 400 images face captured from 40 users each user has 10 different images as variant possess lighting, etc. The result has given accuracy up to 99.23% as successful rate coming from both error types: False Accept Rate (FAR) is 0.25 % and False Reject Rate (FRR) is 0.52 %.

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<input type="checkbox"/>	553	High-Performance Double Node Upset-Tolerant Non-Volatile Flip-Flop Design	Alghareb, F.S., Zand, R., Demara, R.F.	2018	Conference Proceedings - IEEE SOUTHEASTCON 2018-April,8478941	0
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Emerging spin-based devices are introduced as an intriguing candidate to alleviate leakage currents and continue the scalability of CMOS technology. However, their immunity to radiation-induced transient faults needs to be adequately addressed. In this work, a radiation-immune hybrid Spin Transfer Torque Magnetic Tunnel Junction (STT-MTJ)/CMOS flip-flop is designed and evaluated for nonvolatile applications. The proposed nonvolatile flip-flop circuit achieves attractive features, such as low standby power dissipation (21% less than CMOS-based design), high computing performance, and superior soft-error resilience (concurrently can tolerate DNU) to potentially become as a mainstream solution for the aerospace and avionic nanoelectronics.

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<input type="checkbox"/>	554	Comparison of PID, GA and fuzzy logic controllers for cruise control system <i>Open Access</i>	Dawood, Y.S., Mahmood, A.K., Ibrahim, M.A.	2018	International Journal of Computing and Digital Systems 7(5), pp. 311-319	21
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Nowadays, automobile companies give good attention of cruise systems and cruise controllers which are considered as one of the most critical aspects that require precise controller that can accommodate the new development in technology. The movement of running automobiles is variable and complex. For this reason, cruise control system (CCS) has high non-linearity and if a traditional PID controller has been used, it will not give good results in all conditions. This paper presents comparative study of PID controller, PID optimized by GA and fuzzy logic controllers for an automobile cruise control system (ACCS) where it has been used on linearized model of the cruise system. The comparison was for the transient performance; i.e. settling time, rise time and maximum overshoot in addition to the steady state performance i.e. steady state error. MATLAB/SIMULINK and m-file have been used to show the efficiency of each method used and shows the comparison between them. The results indicate that the performance of fuzzy controller has better response regarding the overshoot and the settling time while the PID tuned by using GA gives the shortest rising time. A comparative analysis of each simulated result will be done based on the response characteristic.

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<input type="checkbox"/>	555	MIMO beamforming system for speech enhancement in realistic environment with multiple noise sources	Mohammed, J.R.	2018	International Journal of Speech Technology 21(3), pp. 671-680	0
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Multiple noise sources in a realistic environment severely degrade the quality and intelligibility of the desired speech signal, thus posing a severe problem for many speech applications. Several noise reduction algorithms have been proposed with a main goal to solve this problem. However, the good performances of such algorithms are severely impaired in realistic environment under multi-noise sources condition. In this paper, the author treats the noise cancellation system as a multiple-input multiple-output (MIMO) beamformer system. The proposed approach consists of two steps. First, the noise signals are generated by applying the white noise sources to a MIMO AR system. Then, the noisy microphone signals are sequentially processed by employing multi-channel linear prediction error filters (MCLPEFs) and multi-channel adaptive noise estimation filters (MCANEFs) in the lower path of the proposed beamformer. The MCLPEFs are used to whiten the input signals, while the MCANEFs are used as a MIMO system identification to perform the modeling process of the noise signals. Finally, the noise signals in the upper path are subtracted from the estimated noises in the lower path to recover an enhanced speech signal. Moreover, the performance of the proposed MIMO approach was validated under a realistic environment with real noise sources.

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<input type="checkbox"/>	556	SiC-VSI with Sinusoidal Voltages for an Enhanced Sensorless Control of the Induction Machine <i>Open Access</i>	Al-Badrani, H., Feuersanger, S., Pacas, M.	2018	2018 IEEE 4th Southern Power Electronics Conference, SPEC 2018 8635854	5
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The present paper presents the enhancement of the sensorless field oriented control by using the measured terminal voltages instead of the calculated ones in the fundamental wave models. The system under consideration consist of a three-phase induction machine, a two-level voltage source inverter (VSI) equipped with silicon carbide SiC-switches and an output filter providing almost sinusoidal output voltages and currents. The objective of this work is twofold, on one side it is expected that the range of operation of the classical sensorless schemes and of the model reference adaptive system (MRAS) can be extended by using the measured voltages instead of the reconstructed ones. In addition, the use of the natural field orientation (NFO) as a reference model in a MRAS control scheme in order to extend the range of operation of the sensorless speed control is examined.

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<input type="checkbox"/>	557	Designing and evaluating redundancy-based soft-error masking on a continuum of energy versus robustness	Alghareb, F.S., Ashraf, R.A., DeMara, R.F.	2018	IEEE Transactions on Sustainable Computing 3(3),8074789, pp. 139-152	7
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Near-threshold computing is an effective strategy to reduce the power dissipation of deeply-scaled CMOS logic circuits. However, near-threshold strategies exacerbate the impact of delay variations on device performance and increase the susceptibility to soft errors due to narrow voltage margins. The objective of this work is to develop and assess design approaches that leverage tradeoffs between performance and the resilience of fault masking coverage for various soft-error mitigation techniques. The primary insight from this work is identification of redundancy-based hardening techniques that can deliver increased benefits in terms of the fault coverage energy ratio (FCER) for the leveraged tradeoffs within iso-energy constraints at near-threshold voltage (NTV). Simulation results demonstrate that temporal redundancy approaches offer favorable tradeoffs in terms of FCER. They exhibit reduced impact on performance variations and achieve extensive soft fault masking, therefore improving the system robustness within acceptable delay constraints. Meanwhile, it is shown that a hybrid redundancy approach can be used to protect a low-power system to maintain throughput while tolerating soft errors. We demonstrate how the FCER metric can be used as an optimization parameter to guide circuit synthesis to meet performance and robustness goals. Finally, the impact of design diversity on spatial and hybrid redundancy at NTV is assessed in terms of FCER and delay variation to form overall recommendations regarding soft-error mitigation at NTV.

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<input type="checkbox"/>	558	Experimental demonstration of real-time add/drop operations in DSP-enabled flexible ROADMs for converging fixed and mobile networks	Al-Rawachy, E., Giddings, R.P., Tang, J.M.	2018	2018 Optical Fiber Communications Conference and Exposition, OFC 2018 - Proceedings pp. 1-3	3
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Low-cost and versatile DSP-enabled ROADMs with excellent transparency are vital for seamlessly converging fixed and mobile networks, we demonstrate, for the first time, real-time add/drop operations providing switching at sub-wavelength and spectrally-overlapped sub-band levels.

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|--------------------------|-----|--|---|------|---|---|
| <input type="checkbox"/> | 559 | Face detection based on probability of amplitude distribution of local binary patterns algorithm | Alobaidi, W.H., Aziz, I.T., Jawad, T., Flaih, F.M.F., Azeez, A.T. | 2018 | 6th International Symposium on Digital Forensic and Security, ISDFS 2018 - Proceeding 2018-January, pp. 1-5 | 5 |
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Face detection and recognition are challenging research topics in the field of robotic vision. Numerous algorithms have been proposed to solve several problems related to changes in environment and lighting conditions. In our research, we introduce a new algorithm for face detection. The proposed method uses the well-known local binary patterns(LBP) algorithm and K-means clustering for face segmentation and maximum likelihood to classify output data. This method can be summarized as a process of detecting and recognizing faces on the basis of the distribution of feature vector amplitudes on six levels, that is, three for positive vector amplitudes and three for negative amplitudes. Detection is conducted by classifying distribution values and deciding whether or not these values compose a face.

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|--------------------------|-----|---|--|------|---|----|
| <input type="checkbox"/> | 560 | Proliferative index (Ki67) for prediction in breast duct carcinomas | Ahmed, S.T., Ahmed, A.M., Musa, D.H., (...), Al-Khyatt, M., Pity, I.S. | 2018 | Asian Pacific Journal of Cancer Prevention 19(4), pp. 955-959 | 14 |
|--------------------------|-----|---|--|------|---|----|

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Background and objectives: To date, many tumor markers have been used to predict prognosis and therapeutic response in patients with breast cancer. The well established and routinely applied tumor markers are the estrogen-receptor, progesterone-receptor and Her2/neu-receptor. In the current study, we aimed to highlight any association of the proliferation index (Ki67) in breast infiltrative duct carcinoma with the tumor grade, tumor size and nodal status in addition to hormone receptor status. Tissue sections were stained immunohistochemically for Ki67 nuclear antigen, estrogen, progesterone and Her2/neu receptors using an automated Dako machine (Dako Denmark). There was a significant inverse relationship of Ki67 levels with ER and PR, while values were directly proportional to the tumor grade and Her2/neu status. No significant association was found between Ki67 and size of tumor or nodal status. Ki67 immunoexpression may offer an independent predictive tumor marker and for routine application in cases of breast cancer.

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<input type="checkbox"/>	561	Extended-bandwidth microstrip circular patch antenna for dual band applications <i>Open Access</i>	Majeed, A.H., Sayidmarie, K.H.	2018	International Journal of Electrical and Computer Engineering 8(2), pp. 1056-1066	4
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This paper presents a new wideband microstrip circular patch antenna (MCPA) fed by proximity-coupled line with double-stub matching to achieve dual-band operation. Bandwidth extension is achieved by exciting higher-order modes in the circular radiating patch, and using two stubs to achieve adequate matching across the obtained two bands. The characteristics of the antenna such as reflection coefficient, impedance bandwidth, gain and radiation pattern are investigated and optimized through parametric studies using the CST Microwave Studio Suite. The antenna achieved a large relative bandwidth of 45.16% at the upper band, while the lower one has 10.3% relative bandwidth. The maximum achieved gain of the dual-band antenna in the 5.8GHz band is 4.62dBi while it is 4.85dBi in the upper band. The antenna has an overall size of 30x30x3.2mm<sup>3</sup> corresponding to 0.58λ × 0.58 λ × 0.062 λ at the lower band of 5.8 GHz. The proposed antenna should be useful for WLAN and X-band communication systems.

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<input type="checkbox"/>	562	Element Selection for Optimized Multiwide Nulls in Almost Uniformly Excited Arrays	Mohammed, J.R.	2018	IEEE Antennas and Wireless Propagation Letters 17(4), pp. 629-632	23
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In this letter, a novel multiwide null steering method for uniformly excited large arrays by only adjusting the amplitude and phase of a relatively small number of elements on the extremes of the array is presented. These adjustable elements are optimized by means of genetic algorithm (GA) to construct a specific cancellation pattern that can be used to produce multiple wide nulls in the radiation patterns of the uniformly excited linear arrays. To simplify the feeding network as well as to increase the convergence speed of the optimization algorithm, the excitations of the majority of the array elements are kept constant. Results of applying the GA to optimize 10 out of 100 elements are shown.

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Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 563 A proposed hybrid algorithm for constructing knight tour problem by sudoku grid	Alkallak, I.N., Alnema, Y.H., Sha'ban, R.Z.	2018	Journal of Advanced Research in Dynamical and Control Systems 10(10), pp. 2333-2342	3

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This paper presents a modified algorithm that comes from combination between two concepts which are Knight tour and Sudoku problem solving. In other words, it comprises a hybrid algorithm for constructing Knight tour problem by taking the advantage of Sudoku grid 9x9 as a platform which is consider as a crucial technique in this research to find the optimal solution for Knight tour problem. In more details, this academic piece of writing depends mainly on what has been proposed previously as an algorithm by Alkallak to find the best solution. The developing in this algorithm for this article is to select the initial square to begin the tour as center of sub grid of Sudoku grid. Then, the algorithm gradually searches all the possible positions that the Knight can complete its tour through them. This investigation traversed the Sudoku grid by visiting each cell exactly once without repetition that will ensure passing through all the cells with unvisited cells. That means finding a closed tour for the knight inside the Sudoku grid 9x9. The knight moves one step (one square) in a single direction visits the square such that it has the same value and then followed by all squares holding the same values to reach the solution as pre-mentioned above. The anticipated algorithm will be optimal and ensure to reach the solution in minimum possible number steps without being violated in any state. The results obtained, find all possible tours from any center of sub-grid to the next square that has the same value. As a result, the suggested algorithm in this paper stated that it is more efficiently to use by finding the closed tour. The software employed for achieving this proposal is MATLAB 62014a m-file codes.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	564 Impact of Self and Co-Channel Interference on An DNF Full-Duplex One-Way Relay System <i>Open Access</i>	Jebur, B.A., Tsimenidis, C.C.	2018	Proceedings - IEEE Global Communications Conference, GLOBECOM 8647605	5

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In this paper, we study the impact of the co-channel interference (CCI) in conjunction with the impact of residual self-interference (SI) on the end-to-end (E2E) performance of a denoise-and-forward full-duplex one-way relay channel (DNF-FD-OWRC) network. The investigated system comprises one source node S, which communicates with one destination node D with the aid of an FD relay node, over Rayleigh fading channels. Closed-form expressions for the cumulative distribution function (CDF) and the distribution of the E2E signal-to-interference and noise ratio (SINR) are derived and presented. Moreover, a closed-form expression for the E2E outage probability is presented and validated using Monte Carlo simulations. The obtained results demonstrate the impact of the residual SI and CCI on the E2E performance of the DNF-FD-OWRC and demonstrate the ability of DNF-OWRC to improve the throughput of a conventional half-duplex (HD) OWRC.

<input type="checkbox"/>	565 Three levels quality analysis tool for object oriented programming <i>Open Access</i>	Saeed, M.G., Faraj, K.H.A., Alasaady, M.T., Malallah, F.L.	2018	International Journal of Advanced Computer Science and Applications 9(11), pp. 522-536	5
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In terms of evolution of software engineering methods for complex software developments techniques, new concepts have been emerged in the software languages, which used to develop software quality models. In this research, the Multi Levels Quality Analysis Tool (MLQA) is proposed as a tool for computer-aid software engineering, which classifies software complexity into three levels of analysis, namely the program package analysis, class analysis (program class) and finally the analysis at the level of the program method. MLQA is able to support a method of visual analysis of the software contents with color alerts, and recommendations systems, which can give a quick view of the software development and its complexity. The methodology of this work is a new suggested software quality model based on the standards object-oriented programming complexity metrics as well as threshold limits. In addition, a new quality attribute namely clean code attribute has been proposed and integrating it with the proposed software quality model in a way that enables the user of the model relies on this attribute and reduces the dependence on the software experience, which is expensive and rare at times.

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- 566 Design of optimised linear quadratic regulator for capsule endoscopes based on artificial bee colony tuning algorithm *Open Access* Mohammed, I.K., Abdulla, A.I. 2018 International Journal for Engineering Modelling 31(1-2), pp. 77-98 9

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Wireless Capsule Endoscope (WCE) is a new medical device that can be used for examining the whole digestive tract if effectively actuated. In this paper, a new three-coil actuator is proposed for the capsule endoscope navigation system. The proposed system, which is based on the current-controlled magnetic levitation concept, utilises a small permanent magnet within the capsule body and an arrangement of controlled electromagnet actuator placed on a movable frame. The dynamics of the proposed control system is modelled mathematically and then formulated in state space form. In this research, the Linear Quadratic Regulator (LQR) technique is used for designing a 3DOF controller for the capsule actuation system. Artificial Bee Colony (ABC) tuning algorithm is used for obtaining optimum values for controller gain parameters. The optimised LQR controller is simulated by using the Matlab/Simulink tool, and its performance is then evaluated based on the stability and control effort parameters to validate the proposed system. Finally, the simulation results suggest that the LQR controller based on the ABC optimisation method can be adopted to synthesise an effective capsule actuation system.

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|--------------------------|-----|---|------------------------------------|------|--|---|
| <input type="checkbox"/> | 567 | Hardware implementation for the echo canceller system based Subband technique using TMS320C6713 DSP Kit<br><i>Open Access</i> | Al Zubaidy, M.A.,<br>Thanoon, S.Z. | 2018 | International Journal of Advanced Computer Science and Applications<br>9(1), pp. 461-467 | 1 |
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The acoustic echo cancellation system is very important in the communication applications that are used these days; in view of this importance we have implemented this system practically by using DSP TMS320C6713 Starter Kit (DSK). The acoustic echo cancellation system was implemented based on 8 subbands techniques using Least Mean Square (LMS) algorithm and Normalized Least Mean Square (NLMS) algorithm. The system was evaluated by measuring the performance according to Echo Return Loss Enhancement (ERLE) factor and Mean Square Error (MSE) factor.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	568 Experimental demonstration of real-time add/drop operations in DSP-enabled flexible ROADMs for converging fixed and mobile networks	Al-Rawachy, E., Giddings, R.P., Tang, J.M.	2018	Optics InfoBase Conference Papers Part F84-OFC 2018,W2A.33	0

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Low-cost and versatile DSP-enabled ROADMs with excellent transparency are vital for seamlessly converging fixed and mobile networks, we demonstrate, for the first time, real-time add/drop operations providing switching at sub-wavelength and spectrally-overlapped sub-band levels.

<input type="checkbox"/>	569 Thinning a subset of selected elements for null steering using binary genetic algorithm <i>Open Access</i>	Mohammed, J.R.	2018	Progress In Electromagnetics Research M 67, pp. 147-155	21
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Generally, the null steering is performed by controlling the amplitude and/or phase weightings of all element excitations or only a small number of them. In such cases, a need for extra RF components such as variable attenuators and variable phase shifters with each element in the array is inevitable. In this paper, an alternative method is introduced where the null steering is performed by thinning (or turning off) only a small subset of the elements in the uniform linear arrays. To find an optimum combination of active (on) and inactive (off) elements, a binary genetic algorithm is used. In large arrays, the number of required nulls is much smaller than the total number of array elements, thus only a small subset of the array elements could be sufficient for producing the required nulls rather than optimizing all the array elements. By this way, a faster convergence speed of the optimizer and lowest peak sidelobe level can be obtained. The effectiveness of the proposed method with various subset configurations will be demonstrated and compared with some standard null steering methods.

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<input type="checkbox"/>	570	Tight Upper Bound Performance of Full-Duplex MIMO-BICM-IDD Systems in the Presence of Residual Self-Interference <i>Open Access</i>	Ahmed, M.A., Tsimenidis, C.C.	2018	IEEE Transactions on Wireless Communications 17(1),8094984, pp. 520- 532	3
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In this paper, we derive a tight upper bound on the performance of a coded full-duplex multiple-input multiple-output (MIMO)-based bidirectional transceiver. Iterative detection and decoding (IDD) are proposed to suppress the residual self-interference (SI) remaining after applying different stages of SI cancellation. IDD comprises an adaptive minimum mean-squared error filter with log-likelihood ratio demapping, while the soft decoder by using soft-in soft-out decoding utilizes the maximum a posteriori algorithm. Furthermore, bit-interleaved coded modulation is considered in the presence of additive white Gaussian noise over MIMO frequency non-selective Rayleigh fading channels. Simulation results are presented to demonstrate the bit-error rate (BER) performance as a function of the signal-to-noise ratio showing a close match to the SI-free case for the proposed system. Furthermore, we validate our results by deriving a tight upper bound on the performance of the proposed system using rate-1/2 convolutional codes together with M -ary quadrature amplitude modulation, which asymptotically exhibits a close agreement with the simulated BER performance. Moreover, extrinsic information transfer chart analysis is used to investigate the convergence behavior of the proposed IDD receiver and to determine the number of iterations required for this convergence.

<input type="checkbox"/>	571	A simple self-interference cancellation technique for full duplex communication	Jasim, A.A., Younus, K.M., Ali, A., (...), Alhaddad, A., Abd-Alhameed, R.A.	2017	2017 Internet Technologies and Applications, ITA 2017 - Proceedings of the 7th International Conference 8101943, pp. 224-229	4
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Recently, a considerable attention has been paid for full duplex communication. Full duplex allows transmitting and receiving at same frequency simultaneously. As a result, the spectral efficiency can be increased two times by utilizing this type of communication. Nevertheless, the substantial issue of applying full duplex communication is the self-interference signal. This paper presents a new method of antenna cancellation with symmetric antenna placements to cancel the self-interference signal. Three monopoles antennas are modelled by using Computer Simulation Technology (CST) program; one as a receive antenna, while others as transmit antennas. The cancellation of the method is calculated by utilizing Matlab code. Moreover, many factors that could degrade the system performance are investigated. Results illustrate that this technique provides higher than 50 dB cancellation in a typical situation. However, results show a decline in the efficiency of the technique when there is an inaccuracy of placing the antennas, or amplitude mismatch between two transmitted signals. The obtained simulation results are verified by testing the technique practically. The results show that the practical prototype can provide more than 40dB cancellation over a wide band frequency.

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<input type="checkbox"/>	572	Arc-shaped monopole antennas with reduced coupling for WLAN and WIMAX applications	Yahya, L.S., Sayidmarie, K.H., Elmegri, F., Abd-Alhameed, R.A.	2017	2017 Internet Technologies and Applications, ITA 2017 - Proceedings of the 7th International Conference 8101942, pp. 218-223	7
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An arc-shaped planar-monopole two antennas for WLAN and WiMAX application is proposed. The lengths of the two arcs are designed to meet the requirements for the WLAN and WiMAX standard at 2.45GHz and 3.5GHz respectively. The separation between centers of the two feed lines is 14 mm (0.098 wavelengths at 2.45GHz). A new technique is proposed to reduce the mutual coupling between the two closely-spaced antennas by etching slots in the feed line of each antenna. The slots are in the form of two interlaced letter U. In each antenna, the slot is tuned to resonate at the operating frequency of the other antenna so that the signal coupled from the other antenna is blocked from reaching the antenna port. The antenna performance was investigated by simulation using CST Microwave Studio software. The results show that the proposed method has reduced the envelope correlation coefficient by 246 folds at the 2.45 GHz, and 11 folds at the 3.5GHz frequency bands. Measured S-parameters verified the simulated results.

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<input type="checkbox"/>	573	Finger texture biometric verification exploiting Multi-scale Sobel Angles Local Binary Pattern features and score-based fusion <i>Open Access</i>	Al-Nima, R.R.O., Abdullah, M.A.M., Al-Kaltakchi, M.T.S., (...), Woo, W.L., Chambers, J.A.	2017	Digital Signal Processing: A Review Journal 70, pp. 178-189	32
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In this paper a new feature extraction method called Multi-scale Sobel Angles Local Binary Pattern (MSALBP) is proposed for application in personal verification using biometric Finger Texture (FT) patterns. This method combines Sobel direction angles with the Multi-Scale Local Binary Pattern (MSLBP). The resulting characteristics are formed into non-overlapping blocks and statistical calculations are implemented to form a texture vector as an input to an Artificial Neural Network (ANN). A Probabilistic Neural Network (PNN) is applied as a multi-classifier to perform the verification. In addition, an innovative method for FT fusion based on individual finger contributions is suggested. This method is considered as a multi-object verification, where a finger fusion method named the Finger Contribution Fusion Neural Network (FCFNN) is employed for the five fingers. Two databases have been employed in this paper: PolyU3D2D and Spectral 460 nm (S460) from CASIA Multi-Spectral (CASIA-MS) images. The MSALBP feature extraction method has been examined and compared with different Local Binary Pattern (LBP) types; in classification it yields the lowest Equal Error Rate (EER) of 0.68% and 2% for PolyU3D2D and CASIA-MS (S460) databases, respectively. Moreover, the experimental results revealed that our proposed finger fusion method achieved superior performance for the PolyU3D2D database with an EER of 0.23% and consistent performance for the CASIA-MS (S460) database with an EER of 2%.

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<input type="checkbox"/>	574	Multi-gradient features and elongated quinary pattern encoding for image-based facial expression recognition <i>Open Access</i>	Al-Sumaidae, S.A.M., Abdullah, M.A.M., Al-Nima, R.R.O., Dlay, S.S., Chambers, J.A.	2017	Pattern Recognition 71, pp. 249-263	34
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In this paper we propose a novel texture feature extraction method for posed and spontaneous image based facial expression recognition. The kernel Sobel filter is used with eight masks to derive the gradient components for each pixel in the image. Two types of gradient images are extracted for different directions denoted as  $xy$  and  $lr$ . The robust Elongated Quinary Pattern (EQP) descriptor is then used to quantize neighborhood local gradients around each point using five discrimination levels. We next divide each encoded image into a number of blocks and concatenate the local histogram features of each image individually. In order to boost the performance, we adopt a Multi Classifier System (MCS) to combine all scores of the encoded images based upon a multi-class Support Vector Machine (SVM) classifier. Experimental results show a significant improvement over previous approaches in the average recognition accuracy when using the spontaneous Moving Faces and People (MFP) database. In addition, the proposed method outperformed state-of-the-art methods when applied to the posed CK database with a recognition performance of 99.36% in the case of seven classes and 99.72% without the neutral class.

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<input type="checkbox"/>	575	Offset Aperture-Coupled Double-Cylinder Dielectric Resonator Antenna with Extended Wideband <i>Open Access</i>	Zebiri, C.-E., Lashab, M., Sayad, D., (...), Rodriguez, J., Noras, J.M.	2017	IEEE Transactions on Antennas and Propagation 65(10),8016396, pp. 5617-5622	23
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A compact dielectric resonator antenna for ultrawideband vehicular communication applications is proposed. Two cylindrical dielectric resonators are asymmetrically located with respect to the center of an offset rectangular coupling aperture, through which they are fed. Optimizing the design parameters results in an impedance bandwidth of 21%, covering the range from 5.9 to 7.32 GHz in the lower band and a 53% relative bandwidth from 8.72 to 15 GHz in the upper band. The maximum achieved gain is 12 dBi. Design details of the proposed antenna and the results of both simulations and experiment are presented and discussed.

<input type="checkbox"/>	576	Performance evaluation of the adaptive sidelobe canceller system with various auxiliary configurations	Mohammed, J.R., Sayidmarie, K.H.	2017	AEU - International Journal of Electronics and Communications 80, pp. 179-185	21
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In practical radar systems, the conventional adaptive sidelobe canceller (SLC) works very well as long as the input signal-to-interference-plus-noise (SINR) ratio is low or when the desired signal is known to be absent during certain time intervals. However, under high SINR, attenuation in the direction of the desired signal is inevitable. In this paper, the conventional sidelobe canceller is improved by replacing the separate auxiliary antennas by a number of existing elements of the main antenna array. This modification makes the proposed SLC different from the conventional one because the desired signal components of the main channel and auxiliary signals may be correlated. Such correlation may cause serious attenuation in the desired signal especially when the number of reused elements from both of the main array and auxiliary antenna is increased. The resulting malfunctioning of the desired signal cancellation is eliminated by adjusting the weights of the reused elements to produce a specific cancellation pattern. The required cancellation pattern should have two main features: first, it should have a level equal to that of the main array pattern at the interferer direction. Second, it should have a very low level or a null at the direction of the desired signal. The simulation results show that good performance for interference cancellation, maintaining a distortionless response for the desired signal, and low sidelobe level can be obtained by using the proposed technique. Besides the simplicity and low cost, the other advantage of the proposed SLC is that it can work effectively regardless of the strengths of the desired signal.

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<input type="checkbox"/>	577	Development of two-input adaptive noise canceller for wideband and narrowband noise signals	Mohammed, J.R.	2017	International Journal of Speech Technology 20(3), pp. 741-751	3
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In this paper, the development of the single-stage two-input adaptive noise canceller that proposed by Widrow et al. is investigated. It is shown that the use of multi-stage cancellers instead of a single stage improves the performance of the conventional two-input adaptive noise canceller in a real life high-noise environment. In such environment, the background noise may contain both the wideband and narrowband (sinusoidal) noise components. In this contribution, the wideband noise and sinusoidal noise signals can be significantly suppressed using a new multi-stage adaptive noise cancellation scheme based on adaptive line enhancer (ALE) and Least Mean Square (LMS) filter. The proposed scheme is comprised of two stages. The first stage uses ALE filters, which are used to cancel the sinusoidal noise from the primary and reference input signals, whereas the wideband noise is cancelled using LMS adaptive filter in the second stage. The good performance of the proposed scheme has been verified via real-time implementation on the Texas Instruments TMS320C6713DSK.

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|--------------------------|-----|--|----------------|------|--|----|
| <input type="checkbox"/> | 578 | Optimal null steering method in uniformly excited equally spaced linear arrays by optimising two edge elements | Mohammed, J.R. | 2017 | Electronics Letters<br>53(13), pp. 835-837 | 23 |
|--------------------------|-----|--|----------------|------|--|----|

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The implementation of the feeding network in the arrays that composed of a large number of elements and using non-uniform excitations is a real challenging issue. The complexity of the feeding network can be greatly simplified by using uniformly excited arrays. However, such arrays suffer from sidelobe limitation. An optimised approach for sector sidelobe nulling in the equally spaced linear array pattern with uniform excitations except for two edge elements is presented. The genetic algorithm and particle swarm optimisation are independently used to find the optimal values of the amplitude and phase excitations for those edge elements.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	579 BER performance improvement of V2I communication by using OFDM im exploiting all subcarrier activation patternser	Altalib, S.A., Ali, B.M., Siddiq, A.I.	2017	Proceedings - 2017 International Conference on Communication, Control, Computing and Electronics Engineering, ICCCEE 2017 7866084	4

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One of the essential divisions of the fast developing field of vehicular technology is the vehicle to infrastructure (V2I) communications. The PHY layer of V2I is implemented by the IEEE 802.11p wireless standard, whose core is the Orthogonal Frequency Division Multiplexing (OFDM) due to its robustness against multipath fading. The recently developed technique called OFDM with Index Modulation (-IM) has a better BER performance than OFDM. A source of error in OFDM-IM is that it uses a subset of the all possible subcarrier activation patterns (SAPs). A latest modification is the OFDM-IMA, referring to OFDM-IM that uses all possible SAPs. In this paper, it is proposed to use OFDM-IMA with subcarrier-level interleaving to replace OFDM in the IEEE 802.11p. Computer simulation results show that the proposed system achieves significant BER improvement with respect to OFDM and OFDM-IM, when tested over standard V2I environments.

<input type="checkbox"/>	580 Experimental demonstration of a DSP-based cross-channel interference cancellation technique for application in digital filter multiple access PONs <i>Open Access</i>	Al-Rawachy, E., Giddings, R.P., Tang, J.M.	2017	Optics Express 25(4), pp. 3850-3862	15
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A DSP-based cross-channel interference cancellation (CCIC) technique with initial condition-free, fast convergence and signal modulation format independence, is experimentally demonstrated in a two-channel point-to-point digital filter multiple access (DFMA) PON system based on intensity-modulation and direct-detection (IMDD). The CCIC-induced transmission performance improvements under various system conditions are fully investigated for the first time. It is shown that with one iteration only the CCIC technique can achieve a reduction in individual OFDM subcarrier BERs of more than 1000 times, an increase in transmission capacity by as much as 19 times and an increase in optical power budget by as much as 3.5dB. The CCIC technique thus has the potential to drastically improve the transmission performance of DFMA PONs.

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<input type="checkbox"/>	581	Compact tri-band MIMO antenna with high port isolation for WLAN and WiMAX applications	Saleh, A.M., Sayidmarie, K.H., Abd-Alhameed, R.A., (...), Noras, J.M., Excell, P.S.	2017	2016 Loughborough Antennas and Propagation Conference, LAPC 2016 7807546	12
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This paper presents a Tri-band multiple input multiple output (MIMO) antennae for Wi-Fi/WiMAX applications. The antenna consists of two radiating elements placed symmetrically. The overall dimensions of the antenna are  $47 \times 36 \times 1.6$  mm<sup>3</sup>. The separation distance between the two elements is 3mm ( $0.024\lambda_0$ ). The Co-Planar Waveguide (CPW) technique is used as a feeding network. The Isolation factor is improved by inserting a neutralization line between the ground planes of the two antennas. The proposed MIMO antenna is implemented and tested. The measured results are in reasonable agreement with the simulated ones.

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 582	Design and implementation of a PIFA antenna for multi-band LTE handset applications	Naser, A.A., Sayidmarie, K.H., Aziz, J.S.	2017	2016 Loughborough Antennas and Propagation Conference, LAPC 2016 7807548	4

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The favorable features of the long-term evolution (LTE) standard has attracted much interest. At the lower bands of the LTE systems, designers of mobile handsets antennas face challenges of the conflicting requirements of limited space and long wavelengths. A multi-band PIFA antenna that is printed directly on the substrate is proposed for mobile handset applications. A parametric study using the CST Microwave Suite is presented to show the influences of various design parameters. The antenna design was optimized to attain a bandwidth of (0.67 GHz) centered at (2 GHz). The antenna has a compact size of 60x30x1.6mm<sup>3</sup>, and can be used to serve many LTE bands in the range of (1.7 GHz) to (2.37 GHz). A prototype antenna was fabricated for experimental evaluation where good agreement between simulated and measured results was obtained.

<input type="checkbox"/> 583	Double-monopole crescent-shaped antennas with high isolation for WLAN and WIMAX applications ( Book Chapter)	Sayidmarie, K.H., Yahya, L.S.	2017	<i>Antenna Fundamentals for Legacy Mobile Applications and Beyond</i> pp. 53-70	2
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The mutual coupling between two closely spaced antennas and various techniques for its reduction are explained. Two configurations of a planar double antenna are proposed where one antenna is intended for WLAN and the other for WiMAX applications. Each antenna has the form of a crescent-shaped monopole. The lengths of the two radiating arcs are chosen for resonance at 2.45 GHz and 3.5 GHz to comply with the WLAN and WiMAX standards, respectively. The two monopoles have a small separation of 9 mm (0.0735  $\lambda_0$  at 2.45 GHz). A technique is proposed for reducing the mutual coupling between the two closely spaced antennas by etching a slot in each of the microstrip line feeding the two antennas. The slot length in each antenna is chosen such that it resonates at the operating frequency of the other antenna so that the frequency of the other antenna is notched out and lower coupling is achieved. Two configurations are investigated to obtain increased isolation between the two antennas. The simulations using CST Microwave Studio software show that the proposed methods can reduce the envelope correlation coefficient by 35-fold at the 2.45 GHz and 21-fold at the 3.5 GHz frequency bands.

<input type="checkbox"/>	584	Real-time numerical 0-5 counting based on hand-finger gestures recognition	Sulyman, A.A., Sharef, Z.T., Faraj, K.H.A., Aljawaryy, Z.A., Malallah, F.L.	2017	Journal of Theoretical and Applied Information Technology 95(13), pp. 3105-3115	16
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A well Pointing out by hand for originating some gestures is highly useful in terms of human computer interactions especially when mute people desire to speak something, here a difficulty is raised by delivering their message to the outside world. Therefore, these people can do easily some tasks by drawing a gesture in air using their hands in front of a computer camera which translates these gestures to a speech or text to be understood by other people. Part of hand gesture recognition is counting by hand. This paper proposes a new technique describing hand gesture numerals which are from 0 to 5 that are pointed out by people to be understood by a computer. The technique is implemented by reading a frame as an image then extracting only hand by using YCbCr colour space filter. Then, it is converting to black and white image. After that, number is assigned to a gesture by counting number of flip as white to black from left to right on an intelligently selected path to be scanned on. The experiment was conducted using 180 random hand gesture frames taken from random people, the result of this recognition rate is recorded as 98%.

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| <input type="checkbox"/> | 585 | Synthesizing Asymmetric Side Lobe Pattern with Steered Nulling in Nonuniformly Excited Linear Arrays by Controlling Edge Elements<br><i>Open Access</i> | Mohammed, J.R.,<br>Sayidmarie, K.H. | 2017 | International Journal of Antennas and Propagation<br>2017,9293031 | 17 |
|--------------------------|-----|---|-------------------------------------|------|---|----|

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In radar antennas, asymmetric side lobes are useful, where undesired signals such as noise and ground clutter should be minimized. Also, for practical implementation, the feeding network of such antennas should be efficiently designed. In this paper, a simple analytical method for synthesizing asymmetric side lobe pattern with a wide-angle steered null in the nonuniformly excited linear arrays is presented. In this method, the difference in the side lobe levels on both sides of the main beam is achieved by varying just the phase excitations of the two-edge elements. The major novelty of this paper lies in the fact that the required asymmetric side lobe pattern can be achieved by changing a single phase shifter resulting in a simple feeding network.

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 586	Synthesizing Sum and Difference Patterns with Low Complexity Feeding Network by Sharing Element Excitations <i>Open Access</i>	Mohammed, J.R.	2017	International Journal of Antennas and Propagation 2017,2563901	22

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In monopulse radar antennas, the synthesizing process of the sum and difference patterns must be fast enough to achieve good tracking of the targets. At the same time, the feed networks of such antennas must be as simple as possible for efficient implementation. To achieve these two goals, an iterative fast Fourier transform (FFT) algorithm is used to synthesize sum and difference patterns with the main focus on obtaining a maximum allowable sharing percentage in the element excitations. The synthesizing process involves iterative calculations of FFT and its inverse transformations; that is, starting from an initial excitation, the successive improved radiation pattern and its corresponding modified element excitations can be found repeatedly until the required radiation pattern is reached. Here, the constraints are incorporated in both the array factor domain and the element excitation domain. By enforcing some constraints on the element excitations during the synthesizing process, the described method provides a significant reduction in the complexity of the feeding network while achieving the required sum and difference patterns. Unlike the standard optimization approaches such as genetic algorithm (GA), the described algorithm performs repeatedly deterministic transformations on the initial field until the prescribed requirements are satisfied. This property makes the proposed synthesizing method converge much faster than GA.

<input type="checkbox"/> 587	A novel framework for cross-spectral iris matching <i>Open Access</i>	Abdullah, M.A.M., Dlay, S.S., Woo, W.L., Chambers, J.A.	2016	IPSJ Transactions on Computer Vision and Applications 8(1),9	19
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Previous work on iris recognition focused on either visible light (VL), near-infrared (NIR) imaging, or their fusion. However, limited numbers of works have investigated cross-spectral matching or compared the iris biometric performance under both VL and NIR spectrum using unregistered iris images taken from the same subject. To the best of our knowledge, this is the first work that proposes a framework for cross-spectral iris matching using unregistered iris images. To this end, three descriptors are proposed namely, Gabor-difference of Gaussian (G-DoG), Gabor-binarized statistical image feature (G-BSIF), and Gabor-multi-scale Weberface (G-MSW) to achieve robust cross-spectral iris matching. In addition, we explore the differences in iris recognition performance across the VL and NIR spectra. The experiments are carried out on the UTIRIS database which contains iris images acquired with both VL and NIR spectra for the same subject. Experimental and comparison results demonstrate that the proposed framework achieves state-of-the-art cross-spectral matching. In addition, the results indicate that the VL and NIR images provide complementary features for the iris pattern and their fusion improves notably the recognition performance.

<input type="checkbox"/>	588	An integrated dipole cylindrical DR antenna for UWB applications	Majeed, A.H., Abdullah, A.S., Sayidmarie, K.H., Ali, N.T., Abd- Alhameed, R.A.	2016	2016 10th European Conference on Antennas and Propagation, EuCAP 2016 7481353	0
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In this paper, a balanced dual segment cylindrical dielectric antenna (CDRA) with ultra wide-band operation is reported. First a T-shaped slot and L-shaped microstrip feeding line are suggested to furnish a balanced coupling mechanism for feeding two DRAs. Performance of the proposed antenna was analyzed and optimized against the target frequency band. The antenna cover the frequency range from 6.4 GHz to 11.736 GHz, which is 58.7% bandwidth with a maximum gain of 2.66 dB. The predicted and measured results of the fabricated prototype showed reasonable agreement.

Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 589 A Framework for Iris Biometrics Protection: A Marriage between Watermarking and Visual Cryptography <i>Open Access</i>	Abdullah, M.A.M., Dlay, S.S., Woo, W.L., Chambers, J.A.	2016	IEEE Access 4,7742945, pp. 10180-10193	17

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This paper presents a novel security architecture for protecting the integrity of iris images and templates using watermarking and visual cryptography (VC). The proposed scheme offers a complete protection framework for the iris biometrics which consists of two stages: The first stage is for iris image protection, while the second is for the iris template. First, for protecting the iris image, a watermark text which carries personal information is embedded in the middle band frequency region of the iris image using a novel watermarking algorithm that randomly interchanges multiple middle band pairs of the discrete cosine transform. Second, for iris template protection, the binary iris template is divided into two shares using VC, where one share is stored in the database and the other is kept with the user on a smart card. In addition, the SHA-2 hash function is utilized to maintain the integrity of the stored iris template in both the database and smart card. The experimental and comparison results on the CASIA V4 and UBIRIS V1 iris databases demonstrate that the proposed framework preserves the privacy of the iris images and templates and retains robustness to malicious attacks, while it does not have a discernible effect on the recognition performance.

<input type="checkbox"/> 590 Compact high isolation meandered-line PIFA antenna for LTE (Band-class-13) handset applications <i>Open Access</i>	Naser, A.A., Sayidmarie, K.H., Aziz, J.S.	2016	Progress In Electromagnetics Research C 67, pp. 153-164	6
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MIMO systems have become an essential part in many communications networks and Long Term Evolution (4G) mobile communication systems. Mobile handsets using lower band of LTE (LTE- 700 band) require antennas of reduced size that can be adapted to the limited space in the handset. This paper presents the design, optimization and implementation of two meandered-line PIFA antennas working as an MIMO system with high isolation for LTE-700 band mobile applications. To solve the problem of mutual coupling, a combination of decoupling arrangements was used to improve the isolation between the two antennas. The influences of various design parameters are investigated using the CST Microwave Studio Suite. A prototype of the proposed Meandered-line PIFA Antenna was fabricated and tested using vector network analyzer. Good agreement was found between the simulated and measured results. The fabricated MIMO antenna shows an isolation better than 12 dB and a  $-6$  dB bandwidth of (75MHz) in the frequency range from (720 MHz) to (795 MHz). The antenna has 1.94 dB gain, total efficiency of 85%, and volume of  $110 \times 65 \times 1.6\text{mm}^3$ , that is  $(0.275 \times 0.1625 \times 0.004)$  in wavelengths.

<input type="checkbox"/>	591	An interlaced E-shaped antenna for LTE (Band-Class-13) handset applications	Naser, A.A., Sayidmarie, K.H., Aziz, J.S.	2015	2015 Loughborough Antennas and Propagation Conference, LAPC 2015 7365989	1
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The long-term evolution (LTE) standard has attracted much interest due to its many advantages. Antenna design for the lower band of the LTE systems for mobile handsets faces challenges of the limited space and long wavelengths. An LTE smart mobile antenna is presented, and influences of various design parameters are investigated using the CST Microwave Suite. The antenna shape was then modified to obtain a bandwidth of (50) MHz centered at (767) MHz, and VSWR of 1.163. The antenna has compact size of  $60 \times 15 \times 0.8\text{mm}^3$  ( $0.154 \times 0.038 \times 0.002$  wavelengths at center frequency).

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	592 A meandered line-PIFA antenna for LTE (Band-Class-13) handset applications	Naser, A.A., Sayidmarie, K.H., Aziz, J.S.	2015	2015 Loughborough Antennas and Propagation Conference, LAPC 2015 7366032	4

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The long-term evolution (LTE) standard has attracted much interest because it offers many advantages. Antenna designers for the lower band of the LTE700 band for mobile handsets have to compromise between the limited space in the handset and long wavelengths implied by frequency of operation. An antenna with meandered line-PIFA combination is proposed as a solution for the above challenge. The influences of various design parameters are investigated using the CST Microwave Studio Suite. The antenna shape was then optimized to obtain a -6dB bandwidth of (58) MHz centered at (765) MHz. The antenna offers a second band at 2.16GHz for other applications. The antenna has compact size of 65x110x1.6mm<sup>3</sup> (0.165x0.28x0.004 wavelengths at the center frequency of the lower band).

<input type="checkbox"/>	593 Balanced dual-segment cylindrical dielectric resonator antennas for ultra-wideband applications <i>Open Access</i>	Majeed, A.H., Abdullah, A.S., Sayidmarie, K.H., (...), Elmegri, F., Noras, J.M.	2015	IET Microwaves, Antennas and Propagation 9(13), pp. 1478-1486	12
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This study reports on balanced dual-segment cylindrical dielectric antennas with ultra-wideband (UWB) operation. A T-shaped slot and L-shaped microstrip feeding line was suggested to furnish a balanced coupling mechanism for feeding two DRAs, and then the performance of the proposed antenna was analysed and optimised against the target frequency band. The proposed antenna was then modified by adding a C-shaped strip to increase the gain. The performances of both balanced antennas were characterised and optimised in terms of antenna reflection coefficient, radiation pattern, and gain. The antennas cover the frequency range from 6.4 to 11.736 GHz, which is 58.7% bandwidth. A maximum gain of 2.66 dB was achieved at a frequency of 7 GHz with the first antenna, with a further 2.25 dB increase in maximum gain attained by adding the C-shaped strip. For validation, prototypes of the two antennas were fabricated and tested. The predicted and measured results showed reasonable agreement and the results confirmed good impedance bandwidth characteristics for UWB operation from both proposed balanced antennas.

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<input type="checkbox"/> 594	Compact dielectric resonator antenna with band-notched characteristics for ultra-wideband applications <i>Open Access</i>	Majeed, A.H., Abdullah, A.S., Sayidmarie, K.H., (...), Elmegri, F., Noras, J.M.	2015 Progress In Electromagnetics Research C 57, pp. 137-148	13
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In this paper, a compact dielectric resonator antenna (DRA) with band-notched characteristics for ultra-wideband applications is presented. A comprehensive parametric study was carried out using CST Microwave Studio Suite TM 2011 to analyze and optimize the characteristics of the proposed antenna. Three shapes for the coupling slot were investigated. Simulation results show that the proposed DRA had a  $-10$  dB impedance bandwidth of 23% from 9.97 GHz to 12.558 GHz, and a maximum gain of 7.23 dBi. The antenna had a notched band centered at 10.57 GHz, which increased the reflection coefficient by 23.5 dB, and reduced the gain by 6.12 dB. The optimized designs were verified by experimental tests on fabricated samples.

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<input type="checkbox"/>	595	Lipid peroxidation and antioxidant status in schizophrenic patients treated by quetiapine	Thanoon, I.A., Hasan, M.S., Ahmed, F.A.	2014	Jordan Medical Journal 48(1), pp. 28-33	1
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Objectives: To find the effect of quetiapine on lipid peroxidation and serum total antioxidant status (TAS) in schizophrenic patients. Patients and methods: The subjects comprised 27 schizophrenic patients and 27 healthy volunteers. Clinical symptoms for the patients were assessed in Brief Individual Psychiatry Rating Scale (BPRS) items. The patients were treated with quetiapine (200-500 mg/day) orally for 8 weeks then reevaluated after the treatment. Blood samples from the patients were taken before and after quetiapine treatments. Other blood samples were taken from healthy subjects as a control group. Serum was obtained and analyzed for malondialdehyde (MDA) and TAS. Results: Base time and after 8 weeks of quetiapine treatment showed a significant decrease in BPRS score in the schizophrenic patients. Serum MDA was significantly higher in the schizophrenic patients (difference = 124.1% of control) than controls. The parameter decreased significantly after quetiapine treatment by 16.9% compared with before treatment values. Serum TAS, in the schizophrenic patients, was significantly lower (38.4%) than controls. Quetiapine increased serum TAS significantly by 21.1%. Quetiapine treatment significantly increased body mass index (BMI) by 2.9%. Conclusion: Quetiapine depressed lipid peroxidation, and raised serum TAS in schizophrenic patients. The change in these parameters by quetiapine may play a role in its therapeutic activit. © 2014 DAR Publishers/University of Jordan. All Rights Reserved.

<input type="checkbox"/>	596	Community violence and mental health among Iraqi women, a population-based study <i>Open Access</i>	Al-Nuaimi, M.A.	2013	Qatar Medical Journal 2013(2),11	4
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Background: The recent events in Iraq following the 2003 war render Iraq as a country with a high level of all types of violence. Exposure to violence, as a witness or a victim, is related to a number of longer term emotional, behavioral and social problems. Objectives: To investigate the impact of witnessing and experiencing community violence and tragedy as a factor contributing to mental health disorders among Iraqi women in the city of Mosul. Methods: A population-based cross-sectional study of 500 women were selected by a multi-stage random sampling technique. Four catchment areas of primary health centers of Mosul city were selected. Community violence with nine commonly associated social, economic, emotional, physical and mental health symptoms were recorded by questionnaire. Results: The study revealed that all the participating women had a history of exposure to at least one type of community violence within the last twelve months. A mainstream consequence of exposure to community violence was transportation difficulties, loss of husband's job, and family displacement. More than half of the women were classified as having severe emotional disturbances that may evolve to mental health problems in future. Conclusion: Women are bearing the consequences of the violence in Iraq. National commitment and action needs to be taken to curb the violence which is hugely affecting the people of Iraq. Treatment programs targeted at promoting emotional resilience may be effective at preventing mental health problems.

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