

## **Radio-Location Techniques for localization and Monitoring Applications**

### **Summary:**

Human activity recognition from sensor readings have proved to be an effective approach in pervasive computing for smart healthcare. Recent approaches to ambient assisted living (AAL) within a home or community setting offers people the prospect of more individually-focused care and improved quality of living. However, most of the available AAL systems are often limited by computational cost. In this presentation, we are covering the following: A low cost-effective method of tracking and monitoring for patient/elderly people, by employing passive radio frequency identification (RFID) systems. We have also covered the implementation scheme for a wideband transmission and direction finding system (Angle of Arrival AOA) using OFDM multi-carrier communications systems over adverse channel conditions. On top of that a simple, non-wearable human activity classification framework using the multivariate Gaussian is proposed.



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### **Short Bio:**

Raed Abd-Alhameed is Professor of Electromagnetic and Radio Frequency Engineering at the University of Bradford, UK. He has long years' research experience in the areas of Radio Frequency, Sensor Design, Signal Processing, Propagations, Antennas and Electromagnetic Computational Techniques, and has published over 600 academic journal and conference papers; in addition, he is co-authors of four books and several book chapters. At the present he is the leader of Radio Frequency, Antennas, Propagation, sensor design and Signal Processing; in addition to leading the Communications research group for years within the School of Engineering and Informatics, Bradford University, UK. He is Principal Investigator for several funded applications to EPSRCs and leader of several successful knowledge Transfer Programmes funded by British Council. He has also been a PI/CO-investigator in several funded research projects including 1) H2020 MARIE Skłodowska-CURIE ACTIONS: Research and Innovation Staff Exchange (RISE): Secure and Wireless Multimodal Biometric Scanning Device for Passenger Verification Targeting Land and Sea Border Control 2) H2020 MARIE Skłodowska-CURIE ACTIONS: Innovative Training Networks Secure Network Coding for Next Generation Mobile Small Cells 5G-US; 3) Nonlinear and demodulation mechanisms in biological tissue (Dept. of Health, Mobile Telecommunications & Health Research Programme; and 4) Assessment of the Potential Direct Effects of Cellular Phones on the Nervous System (EU: collaboration with six other major research organizations across Europe).