Sponsor presentation (IEEE): 3:00 pm - 3:30 pm
Prof. Xavier Fernando: Wireless Transmission of Biomedical Signals in Hospital Environments

There is increased demand for the remote access of various biomedical signals by medical professionals. Advancements in the sensor technology have made non-intrusive acquisition of these signals possible. However, reliable wireless transmission of these signals, without interfering with the medical equipment has been an issue of research. Because of this interference issue, traditional wireless networks such as cellular radio or IEEE 802.11 (Wi-Fi) or ZigBee cannot be used for this purpose. Federal Communications Commission (FCC) part 16 defines the amount of electromagnetic radiation allowed near EM sensitive equipment. A wireless network for hospital environment (WNHE) shall meet the bandwidth, reliability and quality assurance requirements without violating the FCC regulations. Power consumption of the tiny biomedical sensors shall also be minimized. In this talk various approaches that have been researched to develop WNHE will be reviewed with some practical examples.

Bio ★ Prof. Xavier Fernando

Xavier Fernando is with Ryerson University, Toronto Canada since 2001 where now he is promoted to a full professor. He has co-authored close to 100 research articles and holds a patent. He is leading Ryerson Communications Research Lab with excellent funding. He has delivered invited talks worldwide including the Cambridge University (UK), Princeton University (USA) and National Research Council (Canada). He is in the IEEE COMSOC Education Board Working Group on Wireless Communications. He is an author and editor of the IEEE Communications Society Wireless Communication Body of Knowledge (WEBOK). He was a visiting scholar at the Institute of Advanced Telecommunications (IAT), UK in 2008. He is a program evaluator for ABET. He worked for AT&T Telecom Products R&D Department during 1994-97.

His work has won several awards and prizes including IEEE Microwave Theory and Techniques Society Bronze Prize in 2010, Princeton Sarnoff Symposium prize in 2009, IEEE Toronto Section exemplary service award in 2007 and Opto-Canada best poster prize 2003. He is the Chair of the IEEE Communications Society, Toronto Chapter and the General Chair for IEEE Toronto International Conference on Science and Technology for Humanity 2009. He has obtained funding from Finnish International Development Agency (FINNIDA), Alberta Informatics Circle of Research Excellence (ICORE), Natural Sciences and Engineering Research Council (NSERC) of Canada, Canadian Foundation of Innovations (CFI), Ontario Innovations Trust Fund (OIT), MITACS, Canadian Photonic Fabrication Research (CPFR) and European FP7 programs.