
Electrical & Computer Engineering
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Louisiana State University

**Digital Signal Processing and Communications:
Enabling Evolving Wireless Systems and Applications**

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Abstract—Advancements in digital signal processing and communications have spearheaded developments in many disciplines such as: 1. power transmission, through the smart grid; 2. agriculture, through sensor networks; 3. transportation, through connected vehicular networks; 4. robotics, through machine-to-machine communications; and 5. medicine, through telemedicine and molecular communications, etc. This extensive use of wireless devices will consequently result in greater demand for both bandwidth and bandwidth efficiency. The former is anticipated to be addressed via the use of the millimeter-wave band, i.e., frequencies above 30 GHz, while the latter has been subject of continuous research that has resulted in new technologies, e.g. reconfigurable antennas, full duplex relaying, heterogeneous networks, and massive multi-input and multi-output (MIMO) systems. In the first part of this talk, we will focus on the role of digital signal processing in advancing these technologies and enhancing bandwidth utilization and efficiency at millimeter-wave frequencies. The second part of this talk, looks beyond the traditional applications of signal processing and communications, and focuses on their role in areas such as sensor networks via energy harvesting systems, and medicine through molecular communications.

Bio—Dr. Mehrpouyan received the B.Sc. honors degree from Simon Fraser University, Burnaby, Canada in 2004 and the Ph.D. degree from Queens University, Kingston, Canada, in Electrical Engineering in 2010. From Sep. 2010 to Aug. of 2012 he was a Post-Doc at Chalmers University of Technology. During this time, he visited the University of Luxembourg. Since 2012, he has been an Assistant Professor at California State University, Bakersfield. During his tenure at CSUB, he has been able to attract external funding to his research team as a PI and Co-PI. Dr. Mehrpouyan has received many awards, e.g., Natural Sciences and Engineering Research Council (NSERC)-Fellowship, British Columbia Wireless Innovation Award, IEEE Wireless Communication Letters Exemplary Reviewer Award, and more. He is an associate editor of IEEE Communication Letters and he has also served as a TPC member for IEEE Globecom, ICC, VTC, etc. Dr. Mehrpouyan has also been involved with industry leaders such as Ericsson AB, Blackberry, Societe Europeenne des Satellites (SES) ASTRA etc. His current research interests lie in the area of applied signal processing and physical layer of wireless communication systems, including millimeter-wave systems, reconfigurable antennas, energy harvesting systems, synchronization, channel estimation, and molecular communications.

When: Tuesday, **31 March 2015, 9:30 - 10:30**

Where: Room 117 EE Building

Info: <http://www.ece.lsu.edu/seminar>

