



***The IEEE Montreal Section and Concordia University are inviting all interested IEEE Montreal members and other engineers and students to a technical seminar on:***

**“Active Learning and Optimization for Next Generation Wireless Systems”**

***By: Prof. Tara Javidi  
Dept. of Electrical & Computer Engineering  
University of California, San Diego, USA***



**DATE: Wednesday October 03, 2018**

**Seminar Time: 6:00 p.m. – 8:00 p.m.**

**PLACE: 1515 Ste. Catherine West (corner with Guy St.), Concordia University, Electrical & Computer Engineering Department, Room EV002.184 (with refreshment)**

For info, please contact **Dr. Anader Benyamin-Seeyar** at [anader.benyamin@ieee.org](mailto:anader.benyamin@ieee.org) or <http://montreal.ieee.ca/en/com-it/contact>.

**Abstract :**

Network management and configuration is an essential attribute of any wireless network with reliable self-tuning capabilities. However, the cost and overhead of network management has rarely been accounted for from a fundamental limit perspective. In contrast to the past generations of networking solutions, however, in the ever-increasingly mobile and large-scale networks of tomorrow the network reconfiguration overhead may not be insignificant; this includes the initial beam alignment, link maintenance, spectrum sensing, packet resizing, etc. Our work aims to provide fundamental limits on the overhead associated with learning, network tuning, and optimization. Our approach relies on fundamental notions in information theory and statistics to quantify the networking overhead and utilizes recent data analytic and machine learning algorithms to develop practical learning/optimization algorithms.

In the first part of the talk, we consider the problem of reliably and quickly searching for a parameter of interest in a large signal space in face of measurement-dependent noise. This problem naturally arises in many practical communications systems such as the directional link establishment and maintenance (beam alignment) as well as spectrum sensing for cognitive radios. In the second part of the talk, we consider an important variant of the search problem: data-driven (Bayesian and non-Bayesian) function maximization and its connection to network parameter tuning.

### **Short Bio:**

**Dr. Tara Javidi** studied electrical engineering at Sharif University of Technology, Tehran, Iran from 1992 to 1996. She received her MS degrees in electrical engineering (systems) and in applied mathematics (stochastic analysis) from the University of Michigan, Ann Arbor, in 1998 and 1999, respectively. She received her Ph.D. in electrical engineering and computer science from the University of Michigan, Ann Arbor, in 2002.

From 2002 to 2004, Dr. Javidi was an assistant professor at the Electrical Engineering Department, University of Washington, Seattle. In 2005, she joined the University of California, San Diego, where she is currently a professor of electrical and computer engineering. Dr. Javidi's research interests are in theory of active learning, information theory with feedback, stochastic control theory, and stochastic resource allocation in wireless communications and communication networks.

Dr. Javidi was a recipient of the National Science Foundation early career award (CAREER) in 2004, Barbour Graduate Scholarship, University of Michigan, in 1999, and the Presidential and Ministerial Recognitions for Excellence in the National Entrance Exam, Iran, in 1992. Professor Javidi is a Distinguished Lecturer of the IEEE Information Theory Society (2017/18).