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Section**



The IEEE Ottawa Joint Chapter of Signal Processing, Oceanic Engineering, & Geoscience and Remote Sensing (SP, OE, & GRS) in joint venture with the Joint Chapter of Communications Society & Broadcast Technology Society (ComSoc & BTS) are inviting all interested IEEE members and other engineers, technologists, and students to a technical seminar on

Adaptive Filtering Games for Designing Reconfigurable Sensor Networks

Speaker: Prof. Vikram Krishnamurthy, Department of Electrical and Computer Engineering, University of British Columbia

Date & Time: Tuesday, March 17th, 2009, 2:00 PM - 3:00 PM

Location: University of Ottawa, School of Information Technology and Engineering (SITE-5084), Boardroom, 5th floor, 800 King Edward Avenue, Ottawa, Ontario, Canada

Admission: Free Registration. Please [contact in advance](#) to reserve seats.

Refreshments: Will be served 15 minutes before the start of the meeting.

Abstract: This seminar deals with decentralized sensor activation and management in large scale sensor networks using game theoretic methods. Using recent results in economics, we describe how the theory of global games gives a powerful paradigm for designing decentralized data-aware sensor activation algorithms in dense sensor networks. We show that the Nash equilibrium of the sensor network has a simple threshold structure and exhibits a remarkable phase transition as more data is collected. Next, we describe how decentralized adaptive filtering algorithms with regret matching can be deployed in sensor networks to guide network behavior to a satisfactory operating point. A major theme of the talk will be the focus on structural properties that result in numerically efficient algorithms rather than brute force computational methods. Another key paradigm of the talk is the idea of sensors learning from data and other sensors – this is different to the traditional paradigm of sensors learning from data alone. This seminar should be of interest to researchers and practitioners in signal processing, sensor design, control systems and economics/applied mathematics.

About the Speaker: Vikram Krishnamurthy (F) currently holds the Canada Research Chair in Signal Processing at the University of British Columbia. Prior to 2002, he was a Chaired Professor, University of Melbourne, Australia where has served as Deputy Head of Department. He has made several contributions to the theory of bayesian estimation, stochastic sensor scheduling, and hidden markov models.

Dr. Krishnamurthy's current research interests include computational game theory, stochastic dynamical systems for modeling of biological ion channels and stochastic optimization and sensor scheduling. Much of his recent research deals with sensor-adaptive signal processing – that is, how networked sensors can dynamically adapt their behavior to optimize the statistical signal processing. Such problems use game theory and stochastic control together with statistical signal processing.

Dr Krishnamurthy has published over 30 book chapters and 125 peer reviewed journal papers. He has served as Associate Editor, IEEE Transactions Signal Processing (2000-2005); IEEE Transactions Automatic Control; IEEE Transactions Aerospace & Electronic Systems; IEEE Transactions Circuit and Systems II; IEEE Transactions Nanobioscience; EURASIP Journal of Applied Signal Processing; and Systems & Control Letters. Dr. Krishnamurthy has received many awards for his research including the Canada Research Chair, and Queen Elizabeth II Fellowship. He is a Fellow of the IEEE and a Member, IEEE Signal Processing Theory and Methods Technical Committee(2005-present).

Contact to reserve seats: Balakumar Balasingam at balasing@site.uottawa.ca, Chair of [Joint Chapter of Signal Processing, Oceanic Engineering, and Geoscience and Remote Sensing](#)