



GUEST SPEAKER

Professor Reza Hoseinnezhad from RMIT University Australia

Date : Wed 22 January 2020, Time : 1.30 to 3.00 PM., Room CS101

at Computer Science Department, Faculty of Science, PSU

TITLE

Recent Advances in Stochastic Sensor Control for Multi-Object Systems

SUMMARY

In many engineering applications, the states of multiple objects are needed to be estimated and tracked from that are measurements acquired from controllable sensors. The “sensor control for multi-object system” problem is especially challenging when in addition to the states, the number of objects is unknown and randomly vary with time, and the measurements from sensors include misses and false alarms, depending on the sensor’s state (location, direction, etc.). Such problems arise in a host of application areas including aerospace, defense, field robotics, security and surveillance, and biomedical research. The most widely known multi-object systems used in such applications are Bayesian multi-object filters that generalize classical paradigms such as Kalman/particle filters to multi-object systems. The last decade has witnessed exciting developments in Bayesian multi-object filtering theory and practice. The introduction of finite set statistics and random finite set theories has led to the development of a new generation of multi-object filters that significantly outperform other methods in terms of accuracy and computation. This seminar presents a general introduction to sensor control problem and its formalization within Bayesian multi-object filters and reviews the latest developments in this area. This is a fertile area of research and many aspects and applications have not been explored yet. The workshop is generally targeted at postgraduate students and researchers as well as all those who have an interest in stochastic filtering and tracking. The talk is expected to inspire the audience towards fresh ideas to apply the new approaches for developing efficient solutions for their research problems.

BRIEF BIOGRAPHY



Reza Hoseinnezhad received his BSc, MSc and PhD degrees, in Electronic, Control and Electrical Engineering, all from University of Tehran (Iran), in 1994, 1996 and 2002, respectively. Since 2002, Reza has been working in various academic positions at University of Tehran, Swinburne University of Technology, The University of Melbourne, and RMIT University. Reza is currently a professor at School of Engineering, RMIT University, Victoria, Australia. He is also Associate Dean (Mechanical & Automotive Engineering). For his main areas of research interest, his publications and current projects see reza.hoseinnezhad.com.