

# Fall 2014 Seminar Series

Presented by the CS Division

## LOCALIZATION AND SCHEDULING IN WIRELESS SENSOR NETWORK

MONDAY NOVEMBER 10, 2014

2:00 PM – HEC 450

Over the last couple of decades, wireless sensor networks have become widely popular for sensing and monitoring various practical phenomena such as medical appliances, military applications, weather forecasting, measuring severity of earthquake, disaster management, wildlife tracking, habitat monitoring etc. Such popularity is primarily due to the rapid advancement in wireless communications, digital electronics, micro-electro-mechanical systems technology, and more importantly the cost for deploying such networks. A good design of wireless sensor network must overcome the challenges of energy harvesting, efficient data collection techniques, and optimized communication in terms of latency and throughput. This talk focuses on two of the computational techniques that deal with sensor localization and conflict free resource sharing in such networks. The problem of localization in the presence of obstacles is solved using a RSSI based graphical modeling. Next, a TDMA based scheduling is discussed that uses graph coloring to eliminate any possibility of collisions. Last, experiences with sensor deployment indoors and outdoors are discussed.

### DR. TUHINA SAMANTA

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Tuhina Samanta is an Assistant Professor in Bengal Engineering and Science University, Shibpur, India. She completed her B.Tech. and M.Tech. from the Institute of Radiophysics and Electronics, Calcutta University in 2003 and 2005 respectively. She obtained her Ph.D. from Bengal Engineering and Science University, Shibpur, in 2010. She was awarded the Canodia Research Scholarship during her M.Tech. She is a recipient of the prestigious Raman Post-doctoral fellowship for collaboration with the Department of Electrical Engineering and Computer Science, University of Central Florida, in 2014-15.

She co-authored almost 35 IEEE/ACM/Springer conference and journal papers. She won the Best Paper award for computational method in IEEE/ASME MESA conference in 2012. Her research interests are in the areas of design of algorithms, complexity analysis for VLSI physical design, wireless sensor network, and physical design for digital microfluidic biochip. She is a member of IEEE and ACM.

