



## ICWS Seminar Series



### **MAXWEIGHT SCHEDULING: FLUID LIMITS AND OUTAGE BEHAVIOR**

Vijay Subramanian, Ph. D.  
Electrical Engineering & Computer Science Dept.  
Northwestern University

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4:00 p.m.  
141 Coordinated Science Lab

**Abstract:** Since the seminal work of Tassiulas-Ephremides'92 on MaxWeight (MW) scheduling policies, there has been considerable effort in developing a deeper understanding of this class of online and stabilizing policies. In this talk we will start by analyzing the fluid model solutions. Concentrating on a one-hop network and MW1, we show that this policy possesses a unique fluid model solution. This characterization is then used in conjunction with an appropriate probability structure to characterize a large deviations principle for the workload process. Connections are then provided with other results on the outage behavior of MW1. We then present extensions of this result for MWA for  $A > 0$  but  $A \neq 1$  for specific one-hop networks, and if time persists for a multi-hop network.

**Biography:** Vijay Subramanian is a Research Assistant Professor in the Electrical Engineering and Computer Science Department at Northwestern University. He received his Ph.D. degree from the University of Illinois at Urbana-Champaign in 1999. From Nov 1999 to May 2006, he was with the Networks Business, Motorola. From May 2006 to Nov 2010 he was a Research Fellow at the Hamilton Institute, NUIM, Ireland, following which he was a Senior Research Associate at Northwestern University until Sept 2011. His research interests include communication networks, social network analysis, queuing theory, mathematical immunology, information theory and applied probability.