



Illinois Center for Wireless Systems

ICWS Seminar Series



Multi-Terminal Feedback Communication and Control

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Abstract:

In point-to-point communication, feedback does not improve the capacity but it improves the error exponent and simplifies the design of the coding scheme. In contrast, in multi-terminal communication, feedback does improve the capacity region as well as the error exponent region. However, exploiting feedback to simplify the coding schemes is not understood.

Multi-terminal communication is conceptually similar decentralized control--we can view the transmitters and the receivers as controllers; the control objective is to jointly control the time evolution of the system so as to minimize the probability of decoding error. In this talk, we overview some recent results on decentralized control and show how these ideas can provide some insights into the design of multi-terminal feedback communication systems.

Bio:

Aditya Mahajan received the B.Tech degree in Electrical Engineering from the Indian Institute of Technology (IIT), Kanpur, in 2003, and the M.S. and Ph.D. degrees in Electrical Engineering and Computer Science from University of Michigan, Ann Arbor, in 2006 and 2008. Since 2008 he is a post-doc in the Electrical Engineering department at Yale University, New Haven, CT. His research interests include decentralized stochastic control, team theory, real-time communication, information theory, graphical models, and discrete event systems.