



ECE Distinguished Lecture

Behnaam Aazhang, Rice University

Friday, October 15th, 2010, 11:00am Harold Frank Hall 4164

“Context Aware Wireless Networks: A Physical Layer Perspective”

The recent surge in wireless data usage has demonstrated one important fact--our networks are not ready for application-rich mobile Internet. All of our current wireless architectures, including Wi-Fi and cellular, are based on interference avoidance, which advocates eliminating simultaneous transmissions to avoid collisions at the receivers. In contrast, if neighboring nodes pool their resources, and cooperate in their signal transmissions, the network could turn interference to its advantage for potentially large increase in network capacity.

In this presentation, we propose a paradigm in which nodes cooperate by pooling power and bandwidth resources and where flows interact opportunistically to avoid interference and increase network utilization. In particular, we will explore location information and network awareness to develop MAC and physical layer strategies to significantly increase spectral and power efficiencies of the network.

Behnaam Aazhang received his B.S. (with highest honors), M.S., and Ph.D. degrees in Electrical and Computer Engineering from University of Illinois at Urbana-Champaign in 1981, 1983, and 1986, respectively. In August 1985, he joined the faculty of Rice University, Houston, Texas, where he is now the J.S. Abercrombie Professor and Chair of the Department of Electrical and Computer Engineering. In addition, he holds an Academy of Finland Distinguished Visiting Professorship appointment (FiDiPro) in the Center for Wireless Communication (CWC) at the University of Oulu, Oulu, Finland. His research interests are in the areas of communication theory, information theory, and their applications with emphasis on multiple access communications, cellular mobile radio communications, and wireless communication networks.

