055:191

Electrical & Computer Engineering Graduate Seminar

SPEAKER: Raghu Mudumbai

"The Present, Past and Future of Wireless"

Thursday October 29, 2009 3:30-4:20 PM Room 3321 SC

ABSTRACT

Wireless communication systems today cover a wide range of applications from satellite radio to cellular phones and garage-door openers. In this talk, we survey the technological basis of wireless communication systems in general and identify two common underlying themes: (1) power efficiency i.e. the problem of detecting a very weak signal buried in noise and (2) bandwidth efficiency i.e. the problem of sharing scarce bandwidth between multiple users without interference. We trace from a historical perspective, how as complex hardware became available, the above two themes led to the development of technologies such as spread-spectrum CDMA and OFDM that underlie 3G cellular, WiFi and other modern wireless networks.

Next, we review two recent technological breakthroughs, i.e. multi-input multi-output (MIMO) wireless and capacity achieving error-correction codes, that promise exciting new future applications. Such future applications include wireless sensor networks, cognitive radio, multi-gigabit wireless in the mm-wave band and so on, and are active research areas here at UI and elsewhere.

Bio
 Raghu Mudumbai joined the Electrical & Computer Engineering department at the University of Iowa in August 2009 as Assistant Professor. He obtained his B. Tech in EE from the Indian Institute of Technology, Madras, India in 1998; MSEE from the Polytechnic University, Brooklyn in 2000 and Ph.D in ECE from the University of California Santa Barbara in 2007. He also worked as a Systems Engineer at LM Ericsson Telephone Co between 2001 and 2003. His research interests are in sensor networks, and wireless communication systems.

All ECE graduate students are required to attend.

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