



THE CHINESE UNIVERSITY OF HONG KONG
 Institute of Network Coding
 and
 Department of Information Engineering
Seminar



Multi-Unicast Capacity of Packet-Level Network Coding on Small Wireless Networks

by

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Date : ~~14 August 2013~~ 21 August 2013 (Wednesday)
Time : 2:30 - 3:30 pm
Venue : ~~Room 1009, William M. W. Mong Engineering Building~~
Room 833, Ho Sin Hang Engineering Building
The Chinese University of Hong Kong

Abstract

Designing optimal network codes for multiple coexisting network flows is a notoriously challenging problem, so is the physical-layer (PHY) delayed feedback capacity analysis for wireless networks. In this talk, we will show that by properly combining linear network coding and delayed feedback, also known as ACK in communication networks, under the umbrella of packet erasure networks, we can circumvent the difficulty of both and devise optimal or close-to-optimal network codes that fully capture the throughput benefits of network coding for various practical wireless packet communications scenarios. Our results include a new design and analysis framework for linear network codes, the capacity results on XOR-in-the-air, wireless access-point networks with transmitter/receiver cooperation, and network codes for adaptive coding and modulation and OFDMA, and joint network coding and scheduling.

Biography

Chih-Chun Wang is currently an Associate Professor of the School of Electrical and Computer Engineering of Purdue University. He received the B.E. degree in E.E. from National Taiwan University, Taipei, Taiwan in 1999, the M.S. degree in E.E., the Ph.D. degree in E.E. from Princeton University in 2002 and 2005, respectively. He worked in Comtrend Corporation, Taipei, Taiwan, as a design engineer in 2000 and spent the summer of 2004 with Flarion Technologies, New Jersey. In 2005, he held a post-doctoral researcher position in the Department of Electrical Engineering of Princeton University. He joined Purdue University as an Assistant Professor in 2006. His current research interests are in the graph-theoretic and algorithmic analysis of network coding. Other research interests of his fall in the general areas of networking, optimal control, information theory, iterative inference algorithms, detection theory, and coding theory.

Dr. Wang received the National Science Foundation Faculty Early Career Development (CAREER) Award in 2009.

**** ALL ARE WELCOME ****