The University of New South Wales
Faculty of Engineering
School of Electrical Engineering & Telecommunications

Invited Talk

Graphical Congestion Games with Applications in Spectrum Sharing

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Date: 13 June 2014, Friday
Time: 9:50 a.m. – 10:40 a.m.
Venue: G3, Electrical Engineering Building

Abstract

The classical congestion game (introduced by Rosenthal in 1973) nicely captures the interactions between selfish players competing for limited resources, and has found many applications in economics, communications, networking, ecology, and sociology. However, such model does not capture the spatial relationships between players, which are critical for many applications. This motivates the study of graphical congestion game, which models the spatial relationships by a graph. In this talk, we will discuss several recent results on graphical congestion games, focusing on those with player-specific and resource-specific payoff functions on weighted directed graphs. We will also discuss how these models can help us to understand dynamic spectrum sharing in distributed wireless networks.

Speaker Biography

Jianwei Huang is an Associate Professor and Director of the Master of Science Program in the Department of Information Engineering at the Chinese University of Hong Kong. He received the Ph.D. degree in Electrical and Computer Engineering from Northwestern University in 2005, and worked as a Postdoc Research Associate at Princeton University during 2005-2007.

Dr. Huang leads the Network Communications and Economics Lab (ncel.ie.cuhk.edu.hk), with the main research focus on network optimization and games. He is the recipient of IEEE WiOPT Best Paper Award in 2014 and 2013, the IEEE SmartGridCom Best Paper Award in 2012, IEEE Marconi Prize Paper Award in Wireless Communications in 2011, the International Conference on Wireless Internet Best Paper Award 2011, the IEEE GLOBECOM Best Paper Award in 2010, Asia-Pacific Conference on Communications Best Paper Award in 2009, and the IEEE ComSoc Asia-Pacific Outstanding Young Researcher Award in 2009. He is the co-author of three recent monographs: "Wireless Network Pricing" (Morgan & Claypool, 2013), "Monotonic Optimization in Communication and Networking Systems" (Now Publisher, 2013), and "Cognitive Mobile Virtual Network Operator Games" (Springer, 2013).

Dr. Huang serves as the Editor of IEEE Journal on Selected Areas in Communications - Cognitive Radio Series, Editor of IEEE Transactions on Wireless Communications, Guest Editor of IEEE Journal on Selected Areas in Communications special issue on "Economics of Communication Networks and Systems", Lead Guest Editor of IEEE Journal of Selected Areas in Communications special issue on "Game Theory in Communication Systems", and Lead Guest Editor of IEEE Communications Magazine Feature Topic on "Communications Network Economics". He was the Associate Editor-in-Chief of IEEE Communications Society Technology News. He is the Chair of IEEE Communications Society Multimedia Communications Technical Committee, and a Steering Committee Member of IEEE Transactions on Multimedia and IEEE International Conference on Multimedia & Expo. He serves as the TPC Co-Chair of NetGCoop 2014, IEEE SmartGridComm Demand Response and Dynamic Pricing Symposium 2014, IEEE GLOBECOM Selected Areas of Communications Symposium 2013, IEEE WiOpt 2012, IEEE ICCC Communication Theory and Security Symposium 2012, IEEE GlOBECOM Wireless Communications Symposium 2010, IWCMC Mobile Computing Symposium 2010, and GameNets 2009. He is a frequent TPC member of leading conferences such as INFOCOM and MobiHoc. He is a senior member of IEEE.

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