



THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering

Seminar

**Competition of Wireless Service Providers
for Atomic Users**

by

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Date : 16 Sept., 2009 (Wed.)
Time : 4:30–5:30pm
Venue : Room 833, Ho Sin Hang Engineering Building
The Chinese University of Hong Kong

Abstract

We study a problem where wireless service providers compete for heterogeneous and atomic (non-infinitesimal) wireless users. The users differ in their utility functions as well as in the perceived quality of service of individual providers. We model the interaction of an arbitrary number of providers and users as a two-stage multi-leader-follower game, and prove existence and uniqueness of the subgame perfect Nash equilibrium for a generic channel model and a wide class of users' utility functions. We show that, interestingly, the competition of resource providers leads to a globally optimal outcome under fairly general technical conditions. Our results show that some users need to purchase their resource from several providers at the equilibrium. While the number of such users is typically small (smaller than the number of providers), our simulations indicate that the percentage of cases where at least one undecided user exists can be significant.

This is a joint work with Jianwei Huang at CUHK and Bixio Rimoldi at EPFL.

Note: The talk is intended for a broader audience, and a recap of relevant concepts will be provided.

Biography

Vojislav obtained a B.Sc. degree in Electrical and Electronics Engineering from Oregon State University (Corvallis, Oregon, USA). He is currently a PhD candidate nearing completion at School of Computer and Communication Sciences at EPFL (Swiss Federal Polytechnic Institute) in Lausanne, Switzerland. His research interests are in using microeconomics and game theory in information theory and wireless communications, and resource allocation. His non-academic interests include just about anything that is curious, in particular if it relates to sociology, geopolitics, and behavioral economics.

**** ALL ARE WELCOME ****

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