

Optimization and Economics for Human-in-the-Loop Networks

SPEAKER **Dr Man Hon CHEUNG**

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Engineering
The Chinese University of Hong Kong
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TIME 10:00 am - 11:00 am

VENUE CS Seminar Room, Y6405
6th Floor, Yellow Zone
Yeung Kin Man Academic Building
City University of Hong Kong
83 Tat Chee Avenue
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ABSTRACT

From the recent advancement of smart devices and mobile applications, we are witnessing a significant increase in the level of interactions between humans and mobile systems. Thus, it is important to exploit the human factors to enhance the performance of mobile networks.

In the first part of the seminar, we introduce mobile crowdsensing (MCS), which utilizes human intelligence to enable innovative sensing applications. In particular, motivated by commercial MCS applications, such as Gigawalk and Field Agent, we focus on the distributed time-sensitive task selection problem. We propose a distributed task selection algorithm for users to plan their mobility and coordinate their task selections based on non-cooperative game theory.

While previous human-in-the-loop literature mostly assumed that the decision-makers are fully-rational, in the second part of the seminar, we introduce behavioral network economics to understand the realistic human behavior with bounded rationality in mobile networks. In particular, we apply the cognitive hierarchy theory to study how the workers' cognitive limitations can affect the performance of multimedia crowdsourcing systems.

BIOGRAPHY

Man Hon Cheung is a Research Assistant Professor in the Department of Information Engineering at the Chinese University of Hong Kong (CUHK). He received the B.Eng. and M.Phil. degrees in Information Engineering from CUHK in 2005 and 2007, respectively, and the Ph.D. degree in Electrical and Computer Engineering from the University of British Columbia (UBC) in 2012. He was a postdoctoral fellow with the Department of Information Engineering at CUHK and the Department of Electrical and Computer Engineering at the University of Macau. He was awarded the Graduate Student International Research Mobility Award by UBC, and the Global Scholarship Programme for Research Excellence by CUHK. He serves as a Technical Program Committee member in IEEE INFOCOM, WiOpt, ICC, Globecom, and WCNC. He is an associate editor of IEEE Communications Letters. His recent research interests include unmanned aerial vehicles (UAVs), behavioral network economics, and blockchain systems.

All are welcome!



In case of questions, please contact Prof Xiaohua Jia at Tel: 3442 9670, E-mail: csjia@cityu.edu.hk, or visit the CS Departmental Seminar Web at <http://www.cs.cityu.edu.hk/>.