

IEEE Communications Society Distinguished Lecturer Tour

Asia-Pacific Region in July 2016

Prof. Jianwei Huang

As an IEEE Communications Society (ComSoc) Distinguished Lecturer, I was honored to be invited to give three lectures at IEEE ComSoc Sapporo/Shinetsu/Tokyo/Nagoya/Shikoku/Hiroshima/Fukuoka Joint Chapter and IEEE ComSoc Kansai Chapter during July 21 to July 28, 2016.

All three talks are based on my recent research of “ Incentive Mechanisms for User-Provided Networks”. Here is the abstract of the talk:

The fast-growing mobile data demands and the proliferation of advanced mobile devices lead to the emergence of user-provided networks (UPNs), which improve user experiences by exploiting the diverse communication needs and resources of different users. The success of UPNs, however, relies on carefully designed incentive mechanisms that effectively encourage voluntary participation and cooperation of users. Motivated by recently launched UPN business models, we will introduce two new mobile UPN incentive mechanisms that take users' energy consumption and data usage costs into consideration. The first one is motivated by the social bandwidth trading scheme pioneered by Karma (<https://yourkarma.com/>), and we design an optimal hybrid pricing scheme that combines usage-based data pricing and quota reimbursement for network-assisted mobile UPNs. The second one is motivated by the crowd-sourced Internet connectivity enabled by OpenGarden (<https://opengarden.com/>), and we design a virtual currency based scheme that incentivizes cooperation in autonomous mobile UPNs. For more information, please see our half-day tutorial delivered during IEEE GLOBECOM 2015 (<http://jianwei.ie.cuhk.edu.hk/Files/UPN-Tutorial.pdf>) and the related publications (<http://ncel.ie.cuhk.edu.hk/content/user-provided-networks>).

1. Tsukuba

My first stop was University of Tsukuba, and the trip was co-arranged by University of Tsukuba. My host was Prof. Jie Li (<http://www.osdp.cs.tsukuba.ac.jp/lijie/>), who is a professor of Computer Science in Division of Information Engineering, Faculty of Engineering, Information and Systems, University of Tsukuba. I knew Prof. Li for many years, mainly due to our interactions in the IEEE WiOpt community, where I served as the TPC Co-Chair and Prof. Li served as the General Co-Chair of WiOpt'12 in Germany.

The DL talk was attended by Prof. Jie Li, Prof. Yongbing Zhang, and some graduate students from the Division of Information Engineering. Prof. Yongbing Zhang is a

Professor of Graduate School of Systems and Information Engineering, and serves as the Dean of College of Policy and Planning Sciences. He is also a leader in the WiOpt community and served as the TPC Co-Chair of WiOpt'13 in Japan.

After my DL talk, Prof. Li, Prof. Zhang and I had some discussions regarding the academia life in Japan and Hong Kong, and some potential collaboration opportunities. Later Prof. Li showed me the city of Tsukuba, and introduced to me the high tech nature of the city.

2. Hakodate

My second stop was Hakodate, where I attended the International Conference on Networking and Network Applications (NaNA: <http://www.nana-conference.org/>) and delivered a keynote talk. My host was Prof. Xiaohong Jiang from the Department of media architecture at the Future University Hakodate (http://www.fun.ac.jp/research/faculty_en/?id=2936).

This is the first edition of the NaNA conference, which was technically sponsored by Xidian University, China and Future University Hakodate, Japan. Besides me, the other two conference keynote speakers were Prof. Han-Chieh Chao (President, National Ilan University, Taiwan) and Prof. Ben Liang (University of Toronto, Canada).

The conference was attended by around 50 researchers, mainly from Japan and China. My talk was chaired by Prof. Pin-Han Ho from University of Waterloo, Canada (<https://ece.uwaterloo.ca/~p4ho/>). My talk was well received, and I received a lot of interesting questions in the Q&A session and during the lunch afterwards. I also got the chance to have in-depth discussions with colleagues from several research groups from University of Electronic Science and Technology of China and Beijing University of Posts and Telecommunications.

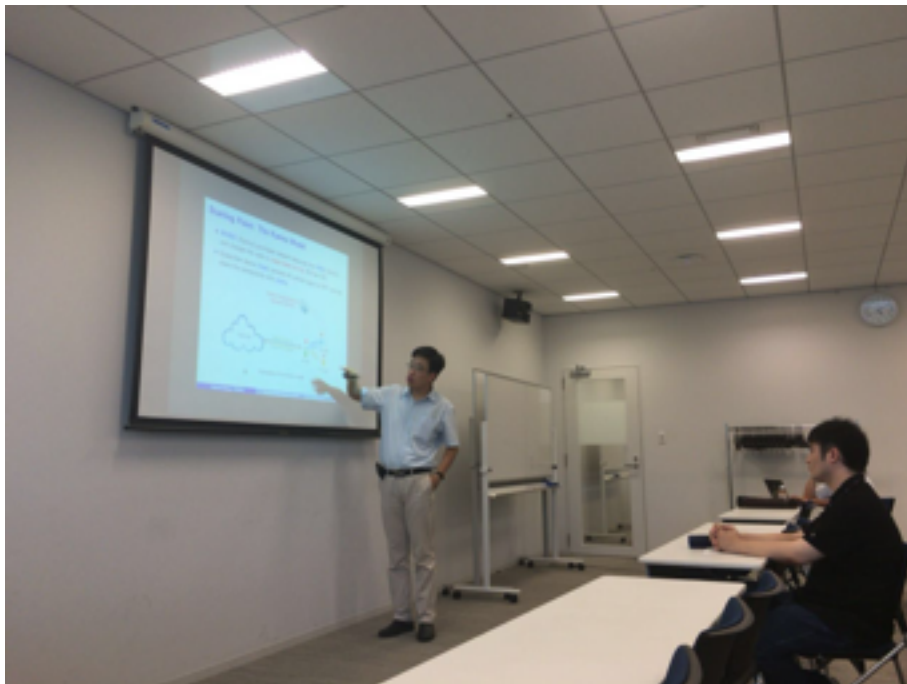


After the talk, I visited several nice places in the Hakodate city, including the famous Goryōkaku, which is a star fort and the first European style fort built in Japan in 1855. The Hakodate city museum located in Goryōkaku offered rich explanations regarding the city history.

3. Osaka

The last stop of my DLT was Osaka. There I was warmly welcomed by all the committee members of IEEE ComSoc Kansai Chapter (<http://www.ieee-jp.org/section/kansai/english/>), and my local host was Prof. Hai Lin from Graduate School of Engineering, Osaka Prefecture University (<http://www.eis.osakafu-u.ac.jp/~lin/indexe.html>). Prof. Lin is an active volunteer in ComSoc and currently serves the Chair of IEEE ComSoc Signal Processing and Communications Electronics Technical Committee.

My talk took place at the Osaka Institute of Technology (OIT), Umekita Knowledge Center. Besides all the IEEE ComSoc Kansai Chapter committee members, some graduate students from local universities also attended my talk. After the talk, the officers invited to have dinner at a local restaurant, and I got the chance to understand the strengths and different operation modes of several universities in the Osaka area.



Acknowledgments

I would like to thank the following colleagues for their strong support of my DL trip:

- ComSoc Tokyo (Joint) Chapter Chair - Shinichi Nomoto
- ComSoc Kansai Chapter Chair - Kazuo Kumamoto
- ComSoc Director AP Region – Takaya Yamazato
- ComSoc DLT Coordinator
- ComSoc Director Member Services – Zhensheng Zhang

Last but not least, I would like to thank Carol Cronin from ComSoc for the great administrative support of the DLT tour.

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Speaker Biography: Jianwei Huang (F'16) is an Associate Professor and Director of the Network Communications and Economics Lab (ncel.ie.cuhk.edu.hk), in the Department of Information Engineering at the Chinese University of Hong Kong. He received Ph.D. from Northwestern University in 2005, and worked as a Postdoc Research Associate at Princeton University during 2005-2007. His main research interests are in the area of network economics and games, with applications in wireless communications, networking, and smart grid. He is a Fellow of IEEE, and a Distinguished Lecturer of IEEE Communications Society (2015-2016).

Dr. Huang is the co-recipient of 8 Best Paper Awards, including IEEE Marconi Prize Paper Award in Wireless Communications in 2011, and Best (Student) Paper Awards from IEEE WiOpt 2015, IEEE WiOpt 2014, IEEE WiOpt 2013, IEEE SmartGridComm 2012, WiCON 2011, IEEE GLOBECOM 2010, and APCC 2009. He has co-authored five books: "Wireless Network Pricing," "Monotonic Optimization in Communication and Networking Systems," "Cognitive Mobile Virtual Network Operator Games," "Social Cognitive Radio Networks", and "Economics of Database-Assisted Spectrum Sharing". He is a co-author of six ESI Highly Cited Papers. He received the CUHK Young Researcher Award in 2014 and IEEE ComSoc Asia-Pacific Outstanding Young Researcher Award in 2009.

Dr. Huang has served as an Editor of IEEE Transactions on Cognitive Communications and Networking (2015-), Editor of IEEE Transactions on Wireless Communications

(2010-2015), Editor of IEEE Journal on Selected Areas in Communications - Cognitive Radio Series (2011-2014), Editor and Associate Editor-in-Chief of IEEE Communications Society Technology News (2012-2014). He has served as a Guest Editor of IEEE Transactions on Smart Grid special issue on "Big Data Analytics for Grid Modernization" (2016), IEEE Network special issue on "Smart Data Pricing" (2016), IEEE Journal on Selected Areas in Communications special issues on "Game Theory for Networks" (2016), "Economics of Communication Networks and Systems" (2012), and "Game Theory in Communication Systems" (2008), and IEEE Communications Magazine feature topic on "Communications Network Economics" (2012).

Dr. Huang has served as Vice Chair (2015-2016) of IEEE Communications Society Cognitive Network Technical Committee, Chair (2012-2014) and Vice Chair (2010-2012) of IEEE Communications Society Multimedia Communications Technical Committee, a Steering Committee Member of IEEE Transactions on Multimedia (2012-2014) and IEEE International Conference on Multimedia & Expo (2012-2014). He has served as the TPC or Symposium Co-Chair of IEEE WiOpt 2017/2012, IEEE SDP 2016/2015, IEEE ICC 2015/2012, NetGCoop 2014, IEEE SmartGridComm 2014, IEEE GLOBECOM 2017/2013/2010, IWCMC 2010, and GameNets 2009. He will serve as a General Co-Chair of IEEE WiOpt 2018. He is a frequent TPC member of leading networking conferences such as INFOCOM and MobiHoc. He is the recipient of IEEE ComSoc Multimedia Communications Technical Committee Distinguished Service Award in 2015 and IEEE GLOBECOM Outstanding Service Award in 2010.