

Mobile Data Offloading

We are witnessing an unprecedented worldwide growth of mobile data traffic, which is expected to reach 10.8 exabytes per month by 2016, an 18-fold increase over 2011. However, traditional network expansion methods by acquiring more spectrum licenses, deploying new macrocells, and upgrading technologies are costly and time-consuming. Clearly, network operators must find novel methods to resolve the mismatch between demand and supply growth, and mobile data offloading appears as one of the most attractive solutions. Mobile data offloading is the use of complementary network technologies, such as WiFi and femtocell, for delivering data traffic originally targeted for cellular networks. In this talk, we will survey the opportunities and challenges of mobile data offloading, and introduce our recent results on the design of optimal delayed offloading protocols and offloading market mechanisms. This is a joint work with Man Hong Cheung and Lin Gao at the Chinese University of Hong Kong, and George Iosifidis and Leandros Tassioulas at University of Thessaly.

Bio:

Jianwei Huang is an Assistant Professor in the Department of Information Engineering at the Chinese University of Hong Kong. He received Ph.D. in Electrical and Computer Engineering from Northwestern University in 2005. He worked as a Postdoc Research Associate in the Department of Electrical Engineering 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 nonlinear optimization and game theoretical analysis of networks, especially on network economics, cognitive radio networks, and smart grid. He is the co-recipient of the IEEE Marconi Prize Paper Award in Wireless Communications in 2011, the IEEE WiOPT Best Paper Award in 2013, the IEEE SmartGridComm Best Paper Award in 2012, 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.

Dr. Huang has served as the Editor of IEEE Journal on Selected Areas in Communications - Cognitive Radio Series, Editor of IEEE Transactions on Wireless Communications, and Guest Editor of IEEE Journal on Selected Areas in Communications and IEEE Communications Magazine. He is the Chair of IEEE ComSoc Multimedia Communications Technical Committee, a Steering Committee Member of IEEE Transactions on Multimedia and IEEE ICME. He has served as the TPC Co-Chair of IEEE GLOBECOM Selected Areas of Communications Symposium 2013, IEEE WiOpt 2012, IEEE ICC Communication Theory and Security Symposium 2012, IEEE GLOBECOM Wireless Communications Symposium 2010, IWCMC Mobile Computing Symposium 2010, and GameNets 2009. "Game Theory in Communication Systems", and Lead Guest Editor of IEEE Communications Magazine Feature Topic on "Communications Network Economics". He is a senior member of IEEE.