Wireless powered edge computing

Abstract: Finite battery lifetime and low computing capability of wireless devices (WD) have been longstanding performance limitations of many low-power wireless networks, e.g., wireless sensor networks and Internet of Things. The recent development of wireless power transfer (WPT) and mobile edge computing (MEC) technologies provide promising solutions to fully remove these limitations so as to achieve sustainable device operation and enhanced computational capability. In this talk, we consider a multi-user MEC network powered by WPT, where each energy-harvesting WD follows a binary computation offloading policy, i.e., data set of a task has to be executed as a whole either locally or remotely at the MEC server via task offloading. In particular, we are interested in maximizing the sum computation rate of all the WDs in the network by jointly optimizing the individual computing mode selection and the system transmission time allocation.

Bio: Yingjun Angela Zhang is currently an Associate Professor. Her research interests include mainly wireless communications systems and smart power systems, in particular optimization techniques for such systems. She serves as the Chair of the Executive Editor Committee of the IEEE Transactions on Wireless Communications. Previously, she served many years as an Associate Editor of the IEEE Transactions on Wireless Communications, IEEE Transactions on Communications, Security and Communications Networks (Wiley), and a Feature Topic in the IEEE Communications Magazine. She has served on the organizing committee of major IEEE conferences including ICC, GLOBECOM, SmartgridComm, VTC, CCNC, ICCC, MASS, etc.. She is now the Chair of IEEE ComSoc Technical Committee on Smart Grid Communications. She was the co-recipient of the 2014 IEEE ComSoc APB Outstanding Paper Award, the 2013 IEEE SmartgridComm Best Paper Award, and the 2011 IEEE Marconi Prize Paper Award on Wireless Communications. She was the recipient of the Young Researcher Award from the Chinese University of Hong Kong in 2011. As the only winner from engineering science, she has won the Hong Kong Young Scientist Award 2006, conferred by the Hong Kong Institution of Science. Dr. Zhang is a Fellow of IET and a Distinguished Lecturer of IEEE ComSoc.