**COLLOQUIUM**

Department of Computer Science and Engineering

University of South Carolina

**Design and Optimization of Secure Cooperative Mobile Edge**

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Date: **March 24, 2017**

Time: **9:30-10:30am**

Place: **Swearingen 1A03 (Faculty Lounge)**

# Abstract

Mobile and wireless systems are bracing for a massive penetration of Internet of Things (IoT) devices and experiencing an exponential growth in wireless applications. To achieve the expected service requirements, the networking resources are being pushed to the edge, such that each edge node can function as a standalone local unit, which has its own green energy harvester, cache and computing resources. Since resources available at the edge nodes are limited and dynamic, network cooperation is critical to guarantee the smooth operation and security of the wireless access networks.

In this talk, I will present the network cooperation framework that allows the “connected” edge nodes to share their networking resources. The first part of this talk concentrates on secure cooperative data transmission. By exploring the broadcasting nature of wireless links, the radio resources in terms of energy can be shared by allowing base stations to transmit data to the same user. I will present cooperative data transmission schemes to improve the network performance in terms of energy efficiency and data confidentiality. The second part of this talk focuses on secure data crowdsourcing. By leveraging multiple data paths at the mobile edge, distributed storage resources can be used to facilitate data sharing among a crowd of users. Data privacy is paramount in assuring users in crowdsourcing; I will present a multi-party data transmission scheme to improve the data sharing latency and data privacy.

**Xueqing Huang** received the B.E. degree from the Hefei University of Technology in 2009, and the M.E. degree from the Beijing University of Posts and Telecommunications in 2012. She is currently a Ph.D. candidate from the New Jersey Institute of Technology. Her research interests are in internet of things, physical layer and network security, and cooperative mobile edge.