**COLLOQUIUM**

Department of Computer Science and Engineering

University of South Carolina

**Data-Driven Applications in Smart Cities - Data and Energy Management in Microgrids**

**Zhichuan Huang**

Date: **February 20, 2017**

Time: **10:45am-12:00pm**

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

# Abstract

The White House announced Smart Cities Initiative with $160 million investment to address emerging challenges in this inevitable urbanization. Under the scope of this initiative, my work addresses emerging problems in the smart energy systems in connected communities with a data-driven approach, including sensing hardware design, streaming data collection to data analytics and privacy, system modeling and control, application design and deployments. In this talk, I will focus on an example of data driven solutions for data and energy management in smart grids. I will first show how to collect the energy data from large-scale deployed low cost smart meters and minimize the communication and storage overhead. Then I will show how we can conduct energy data analytics with the collected energy data and utilize data analytics results for real-time energy management in a microgrid to minimize the operational cost. Finally, I will present real-world impact of my research and some future work about CPS in smart cities.

**Zhichuan Huang** is a Ph.D. candidate in Department of Computer Science and Electrical Engineering at University of Maryland, Baltimore County. He is interested in incorporating big data analytics in Cyber-Physical Systems (also known as Internet of Things under some contexts) for data driven applications in Smart Connected Communities. His current focus is on data driven solutions for smart energy systems including from sensing hardware design, streaming data collection to data analytics and privacy, system modeling and control, application design and deployments. His technical contributions have led to more than 20 papers, featuring 14 first-author papers in premier venues, e.g., IEEE BigData, ICCPS, IPSN, RTSS and best paper runner-up in BuildSys 2014.