Spring 2017 Seminar Series

Ubiquitous Load Modeling and Autonomous Decision Making for Networked Nanogrids

THURSDAY FEBRUARY 16, 2017

11:00 AM – HEC 450

Nanogrids, defined as an interconnection of several smart buildings with shared resources such as distributed generations, storage, economic operations, and control objectives, is the fundamental element between future power grid and end-users. Commercial and residential buildings accounted for 40% of all energy and 75% of all electricity consumption in U.S. Efficient, stable, intelligent, and autonomous operation of nanogrids is critical for renewable integration, infrastructure resiliency, and sustainable expansion.

This talk introduces ubiquitous load signatures extraction and modeling for advanced load identification and monitoring at household and outlet levels. With fine granularity of loads status and energy consumption profile, nanogrid can competitively collaborate in a networked, selfish, and autonomous manner. The proposed game theoretic framework would assign nanogrids self-interests, priority, and autonomous decision making such that optimal power dispatch is achieved globally while every nanogrid is also maximizing its own benefit.

Liang Du

Schlumberger Technology Corporation

Liang Du received the Dual B.Eng. degrees (with honor) in automation and computer science from Huazhong University of Science and Technology, Wuhan, China, in 2003, and the Ph.D. degree in electrical engineering from Georgia Institute of Technology, Atlanta, USA, in 2013. He worked as a summer research intern at the Eaton Corporation Innovation Center in Milwaukee, WI, Mitsubishi Electric Research Labs in Cambridge, MA, and Philips Research North America in Briarcliff Manor, NY, in 2011, 2012, and 2013, respectively. Dr. Du is currently an new product development (NPD) electrical engineer with Schlumberger Technology Corporation, Sugar Land, TX.