

COMPUTER SCIENCE COLLOQUIUM

“Exploring Adaptive Reconfiguration to Optimize Energy Efficiency in Battery-Powered Cyber-Physical Systems”

Professor Cong Liu
University of Texas at Dallas

**In conjunction with
Dallas Chapter of the IEEE Reliability Society
&
Dallas Chapter of the Computer Society**

Abstract

Large-scale battery packs with hundreds/thousands of battery cells are commonly adopted in many emerging cyber-physical systems such as electric vehicles and smart micro-grids. For many applications, the load requirements on the battery systems are dynamic and could significantly change over time. How to resolve the discrepancies between the output power supplied by the battery system and the input power required by the loads is key to the development of large-scale battery systems. Traditionally, voltage regulators are often adopted to convert the voltage outputs to match loads and required input power. Unfortunately, the efficiency of utilizing such voltage regulators degrades significantly when the difference between supplied and required voltages becomes large or the load becomes light. In this talk, I will talk about our approaches by exploring adaptive reconfiguration in both the discharging and the charging processes in order to optimize energy efficiency.

Biography

Cong Liu is currently an assistant professor in the Department of Computer Science at the University of Texas at Dallas, after obtaining his Ph.D. in Computer Science from the University of North Carolina at Chapel Hill in summer 2013. His current research focuses on Real-Time and Embedded Systems, Battery-Powered Cyber-Physical Systems, and Mobile and Cloud Computing. He is the author and co-author of over 30 papers in premier journals and conferences. He received the Best Student Paper Award at the 30th IEEE Real-Time Systems Symposium, the premier real-time and embedded systems conference; he also received the best papers award at the 17th RTCSA. He is a member of ACM and IEEE.

The colloquium is open to the general public

Date: Friday, January 24, 2014
Time: 10:30 – 11:30 am
Location: Room: ECS South 2.415
(Refreshments will be served at 10:15 am)

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