UCF DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCEINCE

Fall 2014 Seminar Series

Presented by the ECE Division

PRIVACY-PRESERVING ENERGY THEFT DETECTION IN SMART GRIDS

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11:00 AM – HEC 450

Energy theft causes about six billion dollar losses to U.S. utility companies (UCs) every year. With the smart grid being proposed to modernize current power grids, energy theft may become an even more serious problem since the “smart meters”' used in smart grids are vulnerable to more types of attacks compared to traditional mechanical meters. Therefore, it is important to develop efficient and reliable methods to identify illegal users who are committing energy theft. Although some schemes have been proposed for the UCs to detect energy theft in power grids, they all require users to send their private information, e.g., fine-grained load files or meter readings at certain times, to the UCs which invades users' privacy and raises serious concerns about privacy, safety, etc. In this talk, I will discuss how to detect energy theft in smart grids while preserving users’ privacy.

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Pan Li received the B.E. degree in Electrical Engineering from Huazhong University of Science and Technology, Wuhan, China, in 2005, and the Ph.D. degree in Electrical and Computer Engineering from University of Florida, Gainesville, in 2009, respectively. Since Fall 2009, he has been an Assistant Professor in the Department of Electrical and Computer Engineering, Mississippi State University. His research interests include network science and economics, energy systems, security and privacy, and big data. He has been serving as an Editor for IEEE Journal on Selected Areas in Communications -- Cognitive Radio Series and IEEE Communications Surveys and Tutorials, a Feature Editor for IEEE Wireless Communications, a Guest Editor for IEEE Wireless Communications SI on User Cooperation in Wireless Networks and International Journal of Distributed Sensor Networks SI on Crowd and Mobile Sensing, and a Technical Program Committee (TPC) Co-Chair for Ad-hoc, Mesh, Machine-to-Machine and Sensor Networks Track, IEE VTC 2014, Physical Layer Track, Wireless Communications Symposium, WTS 2014, and Wireless Networking Symposium, IEEE ICC 2013. He received the NSF CAREER Award in 2012 and is a member of the IEEE and the ACM.