UCF Stands For Opportunity

THE DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE, ECE DIVISION

Presents the Spring 2012 EECS Seminar Series

Miao Zhao

Huawei Technologies, Bridgewater, New Jersey

"Design and Optimization on Mobile Data Gathering in Wireless Sensor Networks"

Thursday, January 26, 2012 • 2:30 p.m. • HEC 450

Abstract

How to efficiently aggregate the information from scattered sensors, generally referred to as data gathering, is an important and challenging issue in Wireless Sensor Networks (WSNs) as it largely determines network lifetime. Recent studies have shown that significant benefit can be achieved by employing mobile collectors for data gathering in WSNs via short-range communications. In this talk, I will present two of my works on mobile data gatherings.

The first work focuses on the design of mobile data gathering strategies by utilizing Spatial-Division Multiple Access (SDMA) to achieve concurrent data uploading from multiple sensors to the mobile collector. The moving tour of the mobile collector is determined based on the tradeoff between the shortest moving path and full utilization of SDMA. This design leads to prolonged network lifetime as well as shortened data gathering latency.

The second work is about joint design and optimization of mobile energy replenishment and mobile data gathering in rechargeable sensor networks. The mobile entity plays as not only a data collector but also an energy transporter to deliver energy to sensors via wireless power transmissions. I proposed distributed algorithms to provide timely energy recharge to maintain perpetual network operations, meanwhile achieving high-performance data gatherings.

I will also briefly discuss some works on other topics during my PhD and Postdoc periods. Finally, I will mention some possible future research works.

Everyone is greatly welcomed!

Biography

Miao Zhao received her B.Eng. and M.Eng. Degrees in Electrical Engineering from Huazhong University of Science and Technology, Wuhan, China in June 2002 and PhD in Electrical Engineering from State University of New York at Stony Brook, New York in December 2010. She is currently a postdoctoral researcher with Media Networking Research Lab of Huawei Technologies, Bridgewater, New Jersey. Prior to Stony Brook, she ever worked at Huawei Technologies as a software engineer in Shenzhen, China and the University of Hong Kong as a research assistant. Her research interests include wireless sensor networks, cross-layer design and optimization for wireless networks, and application/content delivery acceleration. She is a member of IEEE.

DEPARTMENT OF ELECTRICAL ENGINEERING & COMPUTER SCIENCE