

Seminar Talk

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Friday, November 16, 2018
3:00 p.m. KH 224

Title: Energy Harvesting Driven Wireless Communications and Networking

Abstract:

Internet of things (IoT) is perceived as a promising paradigm for interconnection of all physical objects (e.g., devices, vehicles and homes) through the Internet. IoT-based devices are now ubiquitous (e.g., smartphone, tablet, and smart TVs, etc). Power supply is a challenging issue for some IoT devices (e.g., wearable sensors). Energy harvesting is a promising alternative power supply for future IoT networks. Innovative energy harvesting technologies coupled with IoT technologies, wearable technologies, and cyber physical systems, are expected to have broad impact on multiple sectors including healthcare, agricultural monitoring, public safety, security, and surveillance. An energy harvesting system consists of two processes: (1) energy harvesting and (2) data transmission. The operations for each process are referred to as energy plane and data plane. The relationship between these two planes is intricate and complex, which has not been thoroughly explored to date. Dr. Zhao and her research team developed an innovative energy harvesting model and propose to develop a new class of protocols capable of evolving as different perspectives of the relationship between the energy plane and the data plane emerge. Ultimately, Dr. Zhao aims to make significant contributions to develop practical energy harvesting enabled networks for future IoT applications.

Bio:

Dr. Yanxiao Zhao is an Assistant Professor in the Electrical and Computer Engineering Department, Virginia Commonwealth University, where she joined in Aug. 2018. Prior to joining VCU, Dr. Zhao was an Assistant Professor at South Dakota School of Mines and Technology from 2012-2018, where she was awarded tenure and promotion in spring 2018. She received her Ph.D. degree from the Department of Electrical and Computer Engineering, Old Dominion University, USA, in May 2012. Dr. Zhao's research interests include, but not limited to: cyber security, wireless networks including cognitive radio networks, vehicular networks, wireless autonomous networks, wireless body area networks, software-defined networks, and device-to-device (D2D) communications, energy harvesting for Internet of Things with wearable sensors, power management and communications in smart grid. Dr. Zhao's research has been supported by different agencies including NSF, Air Force and NASA. Dr. Zhao has published over 60 papers in prestigious journals and international conferences. She was the recipient of the Best Paper Award

for two international conferences WASA2009 and ChinaCom2016. She has been actively organizing international conferences by serving as TPC co-chair, publicity chairs and TPC members. She is an IEEE Senior Member.