

## Cyber-Physical Systems (CPS) Seminar Series

**Title: Cyber-Physical Systems for Smart Cities: a Mobility Perspective**

**Speaker: Dr. Desheng Zhang, Rutgers University**

**Abstract:** For the first time ever, we have more people living in urban areas than in rural areas. Based on this inevitable urbanization, the research in my group is aimed at addressing sustainability challenges related to urban mobility (e.g., energy consumption and traffic congestion) by data-driven modeling and applications with a Cyber-Physical-Systems (CPS) approach in the vision of Smart Cities. In this talk, I will focus on mobility modeling and resultant applications based on large-scale cross-domain CPS, e.g., cellular networks, payment systems, social networks, and transportation systems (including electric vehicles, taxis, buses, subway, private vehicles, Ubers). I will first show how cross-domain CPS systems can be collaboratively utilized to capture real-time urban mobility by a set of model integration techniques. Then I will show how the captured mobility can be used to design various urban mobile services to close the “loop”, from urban-scale ridesharing to for-hire vehicle dispatching, electric toll collection management, electric-vehicle charging recommendation, and emergency response under mobility anomaly. Finally, I will present some research challenges related to future cross-domain CPS in the context of the smart cities research.

**Biography:** Desheng Zhang is an Assistant Professor in the Department of Computer Science at Rutgers University. Previously, he was offered the Senseable City Consortium Postdoctoral Fellowship from MIT and awarded his Ph.D. in Computer Science from the University of Minnesota. He is broadly interested in Mobile Sensing, Ubiquitous Computing and Cyber-Physical Systems, with a focus on sensing, measurement, and applications for cross-domain mobile systems including cellular networks, Wi-Fi networks, mobile payment systems, taxis, buses, subways, bikes, personal vehicles, electric vehicles, trucks, and social networks from a data-driven perspective. Details: <https://www.cs.rutgers.edu/~dz220/>



**Date: Friday, April 19, 2019**

**Time: 10:30-11:30AM**

**Location: LW Suite 808**