

**AUGUST 26, 2020 | 6:00PM | ONLINE PRESENTATION**  
HOSTED BY VIJAY KONKIMALLA & ALVIN CHIN

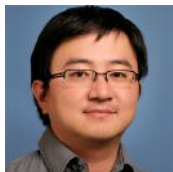


**TOPIC:** Knowing Unknowns:  
Disturbances and Uncertainties in  
Connected and Autonomous Vehicles

**SPEAKER:** Qi Zhu  
Associate Professor, ECE Department  
Northwestern University

**WHEN:** August 26, 2020 – 6:00PM

**WHERE:** Zoom Online Presentation  
RSVP or call 312.861.1100



**Qi Zhu** is an Associate Professor at the ECE Department in Northwestern University. He received a Ph.D. in EECS from University of California, Berkeley in 2008, and a B.E. in CS from Tsinghua University in 2003.

Pr. Zhu's research interests include design automation for cyber-physical systems and Internet of Things, cyber-physical security, safe and secure machine learning for CPS, and system-on-chip design, with applications in domains such as automotive electronic systems, connected vehicles, and energy-efficient buildings.

### **The Only Certainty is Uncertainty**

Future connected and autonomous vehicles (CAVs) will operate in a highly dynamic and uncertain environment.

For best operation and maximum safety, these vehicles use an array of sensors, computation, and communication components. These technologies support not only awareness and perception, but also planning, control, and coordination.

To address the challenges of "unknowns", engineers must understand and manage a number of variables. Unexpected component failures, malicious attacks, issues with dynamic inputs and real-time modeling, and the unpredictable actions of non-autonomous vehicles.

### **Join Us for a Self-Driving Ride**

In this talk, Pr. Qi Zhu will discuss these challenges. Additionally, Pr. Zhu will discuss recent work, including models and methods for analyzing system safety, adaptation strategies, algorithms and tools for verifying the safety of neural network controlled systems, and a comprehensive framework for developing connected vehicle applications.

### **ABOUT NORTHWESTERN UNIVERSITY**

**Northwestern University's Department of Electrical and Computer Engineering** prides itself on both research and teaching. We create a collaborative environment in which interdisciplinary work is encouraged and students develop close relationships with faculty and get involved in cutting-edge research. Areas of focus include computational imaging, computer architecture, embedded systems, information theory, machine learning and signal processing, physical electronics, photonics, quantum devices, VLSI, and wireless communication.

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