DEPARTMENT OF MECHANICAL ENGINEERING COLLOQUIUM

UNIVERSITY OF CALIFORNIA
UC RIVERSIDE

The Department of Mechanical Engineering

PRESENTS

Ryan M. Gerdes, Ph.D.

Assistant Professor
Electrical Engineering
Virginia Tech Research Center

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Winston Chung Hall 205/206
11:10-12:00PM

Cyber-physical Systems Security: Resolved and Unresolved Challenges

Abstract:
The security of cyber-physical systems is receiving an unprecedented amount of attention. Both within the CPS and wider security community, there is a recognition that the threats posed to CPS defy traditional security solutions. However, given the diverse range of expertise of researchers, proposed approaches and solutions to problems are often not shared between member communities or are accepted in one segment of the community but not the other. Drawing on examples from automated vehicles, intelligent transportation systems, and aviation systems, this talk will discuss solutions and challenges to securing CPS.

About the Speaker:
Ryan M. Gerdes is an Assistant Professor in ECE at Virginia Tech. Dr. Gerdes' work focuses on designing resilient computing systems, with an emphasis on cyber-physical systems operating in adversarial environments and leveraging the physical layer for defensive and offensive purposes. He is the principal investigator on NSF and DOE projects that examine the security and privacy of cooperative, automated vehicles; unmanned aerial systems (UAS); and next-generation battery electric vehicles and chargers. Recent research topics have included: use of intentional electromagnetic interference for the physical-layer manipulation of sensors and actuators, including radar and electric motors; identification and tracking of cognitive radios; attack detection and prevention for automotive systems; electromagnetic side-channel analysis for code-change detection; machine learning in adversarial environments; and detection of malicious logic in untrusted, integrated circuit designs.