



# MEASURING CYBER-PHYSICAL RESILIENCE: MODELING, FORMULATION, AND ANALYSIS

~ by ~

**DR. VENKATESH VENKATARAMANAN**

Active Adaptive Control (AAC) Lab

Massachusetts Institute of Technology

**Tuesday, September 29 • 11:00 AM – Noon (PT) • ZOOM ONLY**

**[[wsu.zoom.us/j/5226526738](https://wsu.zoom.us/j/5226526738)]**

## OVERVIEW

---

The smart grid paradigm necessitates the study of power grids as holistic cyber-physical systems, with connections to other critical infrastructure. Considering the threat of high impact, low frequency (HILF) events, it is important to ensure that the smart grid operates in a resilient manner. In this talk, a multi-criteria decision making (MCDM) based formulation for measuring resilience of a cyber-physical smart grid will be described. MITRE's ATT&CK framework will be used to study the impact of cyber-attacks on smart grid resilience.

## BIO

Venkatesh Venkataramanan is currently a post-doctoral research associate at the Active Adaptive Control (AAC) Lab in the Department of Mechanical Engineering at Massachusetts Institute of Technology. He received his Ph.D. in Electrical Engineering and Computer Science in 2019 from Washington State University.

His current research interests are cyber-physical system modeling, enabling cyber-physical resilience for the smart grid, distributed optimization and distributed control techniques, and cyber-physical testbed development.

