

**Environmental Engineering**

**and Earth Sciences**

**EEES Department Seminar**

**“In Search of Network Resilience: An Optimization-Based View”**

PRESENTED BY

Thomas C. Sharkey

Professor

Department of Industrial Engineering

Clemson University

The concept of resilience has become popular for characterizing behavior in the presence of stress. In recent years, much research has been devoted to understanding the resilience of systems that are critical to society, including civil infrastructure and supply chain networks. Advances in resilience theory shows that there are at least four ways systems demonstrate resilience: robustness, rebound, extensibility, and adaptability. Optimization models, particularly network optimization models, can *help* to understand system resilience and have traditionally been applied to create methods to understand resilience as robustness or rebound. Much less work has been done within the optimization community for extensibility and adaptability. The goals of this talk are: (1) provide a brief overview of research done on network resilience, especially in the context of interdependent infrastructure restoration and supply chain recovery and (2) discuss limitations of network optimization to study resilience as extensibility and resilience as adaptability, as well as a research agenda to overcome them.

*This talk with discuss research that has been done in collaboration with various partners including Sarah Nurre Pinkley (University of Arkansas), David Alderson (Naval Postgraduate School), Dan Eisenberg (Naval Postgraduate School), Al Wallace (Rensselaer Polytechnic Institute), John Mitchell (Rensselaer Polytechnic Institute), Sudeep Hegde (Clemson), and Mary Beth Kurz (Clemson).*

**Bio:** Dr. Sharkey is a Professor of Industrial Engineering at Clemson University. Prior to joining Clemson in August 2020, he served as a faculty member at Rensselaer Polytechnic Institute for twelve years. His research interests are in applying network optimization to societal applications including infrastructure and supply chain resilience and disrupting illicit supply chains. His resilience research has been funded by multiple NSF grants, including a CAREER award, and through a DHS Center of Excellence. He has received multiple teaching awards for creating blended learning environments for undergraduate OR courses.

**2:30 PM**

 **Friday, September 10, 2021**

**Online via Zoom**

***“Attendance is mandatory for graduate students enrolled in EES 8610, EES 9610, and GEOL 8510***

<https://clemson.zoom.us/j/5783910968>

**Refreshments following Seminar**