

# IE Decision Systems Engineering

## Fall '21 Seminar Series

# Rethinking Resilience

Friday, October 22, 2021, 12:00PM (AZ time)

Location: BYENG 210

### Abstract

Operations Research has yielded remarkable progress in the planning, operation, and design of a variety of civilian and military systems, making it possible to do things faster, better, and cheaper. However, the growing complexity of the world is showing that increased efficiency often comes at a price—when things fail, they can do so catastrophically. The term “resilience” has recently become a popular buzzword for systems that can absorb, resist, and recover from disruptive events. However, much of the work to date on this topic is merely descriptive and not particularly informative about what to do to make systems more resilient. This talk takes a modern look at the concept of resilience as it applies to the ability of a system to continue to operate in the presence of disruptive events and/or surprise. We also describe the limitations of big data analytics for resilience when systems are challenged by fundamental surprises never conceived during model development. In these cases, adoption of big data analytics may prove either useless for decision support or harmful by increasing dangers during unprecedented events.



**David Alderson**

**Professor in the  
Operations Research  
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**Founding Director for  
the Center for  
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### Bio

David Alderson is a Professor in the Operations Research Department and serves as Founding Director for the Center for Infrastructure Defense at the Naval Postgraduate School (NPS). Dr. Alderson's research focuses on the function and operation of critical infrastructures, with particular emphasis on how to invest limited resources to ensure efficient and resilient performance in the face of accidents, failures, natural disasters, or deliberate attacks. His research explores tradeoffs between efficiency, complexity, and fragility in a wide variety of public and private cyber-physical systems. Dr. Alderson has been the Principal Investigator of sponsored research projects for the Navy, Army, Air Force, Marine Corps, and Coast Guard and a recipient of ACM SIGCOMM Test of Time Paper Award in 2016, Military Operations Research Society Richard H. Barchi Prize in 2014, and AIAA Homeland Security Award in 2007. Dr. Alderson received his doctorate from Stanford University and his undergraduate degree from Princeton University.

**Hosted by:**  
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