

GRADUATE SEMINAR

Measuring, Modeling, and Improving Community Resilience

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The study of community resilience is, at its very core, interdisciplinary yet it requires exercising disciplinary expertise to ensure each component in a complex interacting model represents the best science. In turn, this requires a new type of research environment that balances contributions from disciplines to enable them to not just transfer ideas and algorithms, but to merge them into an idea or algorithm. In this presentation, I will begin by briefly highlighting the Center for Risk-Based Community Resilience Planning's approach to merge engineering, social science/planning, and economics to form the Interdependent Networked Community Resilience Modeling Environment (IN-CORE). Then, imagine a community setting performance goals conditioned on the occurrence of a hazard event – performance goals for their economy such as household income and local tax revenue generation; for their population such as dislocation, school and healthcare access; and identifying the combination of engineering and social policies that enable these performance goals to be achieved - all at the planning stage prior to a hazard event. I'll close with an example of how we measure these in an interdisciplinary computational environment to identify the level of investment needed so the community can, prepare for and recover rapidly from disruptions, thereby becoming resilient.



Dr. John W. van de Lindt is the Harold H. Short Endowed Chair Professor in the Department of Civil and Environmental Engineering at Colorado State University. Over the last two decades van de Lindt's research program has focused on performance-based engineering and test bed applications of building and other systems for earthquakes, hurricanes, tsunamis, tornadoes and floods. Professor van de Lindt is the Co-director for the National Institute of Standards and Technology-funded Center of Excellence (COE) for Risk-Based Community Resilience Planning headquartered at Colorado State University entering its seventh year. He has published more than 400 technical articles and reports including more than 200 journal papers, and currently serves as the Editor-in-Chief for the ASCE Journal of Structural Engineering.

April 8, 2021

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