



“A NOVEL FRAMEWORK FOR REGIONAL POST-DISASTER RECOVERY MODELING & RESILIENCE ASSESSMENT OF THE BUILT ENVIRONMENT”

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ABSTRACT

Driven by the increasing vulnerability of the expanding and interconnected built environment to extreme events, the iRe-CoDeS framework is developed to assess the resilience of the built environment and inform optimal resilience-improving actions. The framework treats the environment as a network of interacting components belonging to various infrastructure systems and the building stock. The interaction among these components is captured by simulating the flow of resources during post-disaster recovery, with resilience measured by the system's ability to meet post-disaster resource demands. The framework's flexibility is demonstrated through various case studies, by integrating the framework with third-party software, and validation with actual earthquake recovery data.

BIOGRAPHY

Dr. Nikola Blagojević is a postdoctoral researcher at the Chair of Structural Dynamics and Earthquake Engineering at ETH Zurich. His research focuses on the development of novel tools and frameworks for disaster resilience assessment of interdependent systems. As part of his doctoral thesis, he developed the iRe-CoDeS framework for probabilistic resilience-based design of the built environment. His current work involves using the iRe-CoDeS framework to assess hospital resilience. He is the lead developer of the open-source python library for regional recovery simulation and resilience assessment: pyrecodes. In addition to his academic work, he collaborates with the insurance industry to enhance tools for business interruption loss assessment. He holds a PhD from ETH Zurich (2023), and a MSc (2016) and BSc (2015) in civil engineering from the University of Belgrade, Serbia.