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Leadership Council Member, Center for Resilient and Sustainable Communities

Education

PhD, Civil Engineering, The University of Texas at Austin

Key Interests

Disaster Preparedness | Disaster Planning | Disaster Response | Hospital Capacity Estimation for Surge Demand

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SELECT PUBLICATIONS

- › TariVerdi, M. *et. al.* (2019). A resource-constrained, multi-unit hospital model for operational strategies evaluation under routine and surge demand scenario. *IJSE Trans. Healthc. Syst. Eng.*, 9(2), 103-119.
- › TariVerdi, M. *et. al.* (2018). Strategies for improved hospital response to mass casualty incidents. *Disaster Med. Public Health Prep.*, 12(6), 778-790.
- › Shahverdi, B. *et. al.* (2020). Assessing hospital system resilience to disaster events involving physical damage and demand surge. *Socio-Econ. Plan. Sci.*, 70, 100729.
- › Tariverdi, M. *et. al.* (2019). Health care system disaster-resilience optimization given its reliance on interdependent critical lifelines. *J. Infrastruct. Syst.*, 25(1), 04018044.

Research Focus

My research team develops and runs stochastic, discrete-event, multi-unit, resource-constrained simulation models of emergency patient services at hospitals that follow patients through their care paths from entry through discharge. These models allow for hospital and regional capacity planning for surge in demand for emergency and critical care. In other research, my team works on hospital resilience quantification and tools to support hospital accessibility and functionality in disaster events.

Current Projects

- NSF - "RAPID: A Portal to Support Models for Assessing Strategies for Hospitals in the COVID-19 and other Pandemics - MASH-Pandemics": This RAPID grant has developed the Models for Assessing Strategies for Hospitals (MASH) in Pandemics (MASH-Pandemics) Portal (mash-pandemics.vse.gmu.edu) with requisite modeling capabilities needed by hospitals and regions in responding to the COVID-19 pandemic. MASH-Pandemics builds on previously developed sophisticated, detailed, discrete-event, simulation-based hospital capacity and capability analysis models of typical U.S. urban hospitals. This RAPID project supports the re-specification of these models, data collection, model runs, and results analysis, the outcomes from which will aid hospital administrators and regions in making optimal operational changes and collaboration plans.