



Kathryn Laskey, PhD

Professor, Systems Engineering and Operations Research

Education

PhD, Statistics and Public Policy, Carnegie Mellon University

Key Interests

Resilient Communities | Knowledge Representation | Multi-Source Information Fusion
| Artificial Intelligence | Machine Learning | Bayesian Inference | Decision Support Systems

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SELECT PUBLICATIONS

- › Laskey K.B., *et al.*, (2016). High-Level Fusion for Crisis Response Planning. In Rogova, G. and Scott, P. Fusion Methodologies in Crisis Management: Higher Level Fusion and Decision Making. Springer.
- › Carvalho R.N., *et al.*, (2017). PR-OWL - A Language for Defining Probabilistic Ontologies. *International Journal of Approximate Reasoning*, 91, 56-79.
- › De Villiers J.P., *et al.*, (2018). Uncertainty Representation and Evaluation for Modelling and Decision-making in Information Fusion. *Journal of Advances in Information Fusion*, 13(2).
- › Carvalho R.N., *et al.*, (2016). Uncertainty modeling process for semantic technology. *PeerJ Computer Science*, 2:e77.

Research Focus

As society becomes ever more tightly interconnected, citizens gain instant access to vast stores of knowledge and depend on assistance from a growing array of smart devices. My research helps to turn that expectation into reality. I develop methods for transforming data from a variety of sources into information to answer our questions and improve our decisions. With greater interconnectivity and reliance on technology comes the potential for disruption due to technology failures, natural disasters, or malicious human activity. In addition, I lead the Center for Resilient and Sustainable Societies (C-RASC), which performs research to foster sustainable community resilience in the face of disruptions. I have applied my research to diverse areas, including crisis response planning, analyzing susceptibility to phishing attacks, detecting insider threats in information systems, predicting innovations in science and technology, protecting soldiers from improvised explosive devices, and understanding airline delays.

Current Projects

- The Collaborative Community Resilience project is developing an iterative five-step, multiscale coordinating framework based on local engagement and leadership to help stakeholders evaluate several platforms for innovation (technologies and other tools) and combine them into capabilities that meet community needs. The framework is being applied and refined through a series of case studies.
- The Modeling Optimal Drilling Locations [MODL] project is a collaboration with [Global MapAid](#) and the Water Technology Institute at [Arba Minch University](#) [link to <http://amu.edu.et>] to build a prototype system to fuse sensor data with hydrogeological knowledge to identify optimal locations for Ethiopian small farmers to drill shallow boreholes for sustainable crop irrigation.
- The Cyber Disaster Resilience project examines resilience of critical infrastructure, with a focus on hospitals, against compound threats that combine cyber attacks with natural disasters.