

Curriculum Vitae
ALLISON C. REILLY

University of Maryland
Department of Civil and Environmental Engineering
1173 Glenn L. Martin Hall
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301-405-8846

EDUCATION

- 2011 PhD, Civil and Environmental Engineering, Cornell University
Dissertation: “Game Theory Based Identification of Facility Use Prohibitions for the Movement of Hazardous Materials under Terrorist Threat”
- 2008 MS, Civil and Environmental Engineering, Cornell University
Thesis: “Using Data Envelopment Analysis to Evaluate Post-Hurricane Electric Power Restoration Performance”
- 2005 BS, Civil Engineering, Johns Hopkins University

ACADEMIC POSITIONS

- Aug 2016 – present Assistant Professor
University of Maryland, College Park, MD
Department of Civil and Environmental Engineering
- 2015 – 2016 Research Fellow
University of Michigan, Ann Arbor, MI
Department of Industrial and Operations Engineering
- 2012 – 2015 Postdoctoral Research Associate
Johns Hopkins University, Baltimore, MD
Department of Geography and Environmental Engineering

PROFESSIONAL EXPERIENCE

- 2011 – 2012 Senior Associate Analyst
Homeland Security Studies and Analysis Institute, Arlington, VA

RESEARCH INTERESTS AND EXPERTISE

Application Areas: infrastructure system performance and resilience, multi-hazard risk analysis and climate change adaptation, interdependent infrastructure, intelligent adversary risk analysis
Methodological: game theory and decision science, risk and reliability, optimization, network analysis, simulation, data science and Bayesian statistics, agent-based simulation models

AWARDS AND HONORS

- 2006-2009 Graduate Research Fellow, National Science Foundation
- 2006 John E. Perry Teaching Assistant of the Year, Department of Civil and Environmental Engineering, Cornell University
- 2005 Faculty Award, Department of Civil Engineering, Johns Hopkins University
- 2004 German Travel Fellow, Johns Hopkins University
- 2004 American Concrete Institute Award
- 2003 Vredenburg Scholar, Johns Hopkins University

JOURNAL PUBLICATIONS

Peer reviewed

Reilly, A., G. Tonn, C. Zhai, and S. Guikema. (2016) "Hurricanes and Power System Reliability – The Effects of Individual Decisions and System-Level Hardening" [invited, under review].

Reilly, A., E. Zechman Berglund, and S. Guikema. (2016) "Is assumed rationality a conservative strategy?" [under review]

Reilly, A., L. Zhu, T. Igusa, S. Guikema. (2016) "Evolution of vulnerability of communities facing repeated hazards" [under 2nd review, *PLoS ONE*].

Reilly, A., A. Staid, M. Gao, and S. Guikema. (2016) "Computer parallelization for risk analysis: A tutorial." [accepted, *Risk Analysis*].

Reilly, A., R. Davidson, L. Nozick, T. Chen, and S. Guikema. (2016) "Using data envelopment analysis to evaluate post-hurricane electric-power restoration performance" *Reliability Engineering and System Safety*. 152: 197-204. DOI: doi:10.1016/j.res.2016.03.007

Reilly, A., A. Samuel, and S. Guikema. (2015) "Gaming the 'system': Decision making by interdependent critical infrastructure." *Decision Analysis*. 12(4): 155-172. DOI: dx.doi.org/10.1287/deca.2015.0318

Guikema, S., R. Nateghi, S.M Quiring, A. Staid, **A. Reilly**, and M. Gao. (2014) "Predicting hurricane power outages to support storm planning response." *IEEE Access*. 2:1364-1373. DOI: 10.1109/ACCESS.2014.2365716

Reilly, A., and S. Guikema. (2014) "Bayesian multiscale modeling of spatial infrastructure performance predictions with an application to electric-power outage forecasting." *Journal of Infrastructure Systems*. 21(2): DOI: 10.1061/(ASCE)IS.1943-555X.0000222

Reilly, A., L.K. Nozick, N. Xu, D. Jones. (2012) "Game Theory-Based Identification of Facility Use Restrictions for the Movement of Hazardous Materials Under Terrorist Threat." *Transportation*

OTHER PUBLICATIONS

Non-peer reviewed

Guikema, S., S. Quiring, R. Nateghi, **A. Reilly**, “Predicting Power Outages from Hurricanes: Supporting Emergency Response Planning,” *IAEM Bulletin*, December 2013.

Conference Proceedings

Reilly, A., S. Guikema, C. Ferreira, and J. Garzon, “Quantification of evolving regional vulnerability to hurricanes” 16th Annual European Safety and Reliability Conference (ESREL), Glasgow, Scotland.

Reilly, A., A. Samuel, and S. Guikema, “Aggregating performance measures in interdependent infrastructure networks: issues and challenges” 15th Annual European Safety and Reliability Conference (ESREL), Zürich, Switzerland.

Reilly, A., and S. Guikema. “Bayesian Multiscale Modeling of Spatial Infrastructure Performance Predictions,” 9th Annual Inter-University Symposium on Infrastructure Management (AISIM9), Berkeley, CA.

PRESENTATIONS

Conference presentations

Reilly, A. and S. Guikema, “Games and Risk: A Foundational Perspective,” SAMSI Workshop on Games and Decisions in Reliability and Risk, Research Triangle Park, NC, May 16-20, 2016.

Reilly, A., A. Samuel, and S. Guikema, “Risk Characterization in Interdependent Infrastructure,” SRA Annual Meeting, Arlington, VA, December 7-10, 2015.

Reilly, A., A. Samuel, and S. Guikema, “Performance Measure Selection and its Impacts on Risk Characterization in Interdependent Infrastructure,” INFORMS Annual Meeting, Philadelphia, PA, November 1-4, 2015.

Reilly, A., A. Samuel, and S. Guikema, “Aggregating performance measures in interdependent infrastructure networks: Issues and challenges,” 15th Annual European Safety and Reliability Conference (ESREL), Zürich, Switzerland, September 6-10, 2015.

Reilly, A., R. Davidson, L. Nozick, T. Chen, S. Guikema, “Performance Evaluation of Post-Hurricane Electric Power Restoration Activities,” SRA Annual Meeting, Denver, CO, December 7-10, 2014.

Reilly, A. A. Samuel, and S. Guikema, “Interdependent Network Performance Measures and Characteristics,” INFORMS Annual Meeting, San Francisco, CA, November 6-9, 2014.

Reilly, A., A. Samuel, and S. Guikema, “Gaming the ‘system,’” INFORMS Advances in Decision Analysis, Washington, DC, June 16-18, 2014.

Reilly, A., and S. Guikema, “Bayesian Multiscale Modeling of Spatial Infrastructure Performance Predictions,” Society for Risk Analysis 2013 Annual Meeting, December 9, 2013.

Reilly, A., A. Samuel, and S. Guikema, “Understanding behaviors of owners of interdependent infrastructure systems to achieve reliability improvement,” INFORMS Annual Meeting, Minneapolis, Minnesota, October 6-9, 2013.

Reilly, A., and S. Guikema, “Bayesian Multiscale Modeling of Spatial Infrastructure Performance Predictions,” 9th Annual Inter-University Symposium on Infrastructure Management (AISIM9), University of California, Berkeley, June 7, 2013.

Invited seminars

University of Michigan, Industrial and Operations Engineering, October 21, 2015
“The influence of human decisions on critical infrastructure resilience and vulnerability”

Johns Hopkins University, Department of Civil Engineering, September 23, 2014
“Systems Engineering – An Overview”

University of Connecticut, Department of Civil and Environmental Engineering, October 18, 2013
“Interdependent networks and their investment inefficiencies: When network operators compete”

University of Delaware, Department of Civil and Environmental Engineering, September 25, 2013
“Interdependent networks and investment inefficiencies”

Lund University, Centre for Risk Assessment and Management, March 13, 2013
“Game Theory Based Identification of Facility Use Prohibitions for the Movement of Hazardous Materials under Terrorist Threat”

University of Delaware, Department of Civil and Environmental Engineering, February 19, 2013
“Game Theory Based Identification of Facility Use Prohibitions for the Movement of Hazardous Materials under Terrorist Threat”

Johns Hopkins University, Department of Geography and Environmental Engineering, February 5, 2013
“On measuring performance: Indicators, indices, and data envelopment analysis”

TEACHING

Winter 2016 University of Michigan, Ann Arbor, MI
Course: Vertically Integrated Program for Interdisciplinary Research

Spring 2015 Johns Hopkins University, Baltimore, MD
Course: 570.210 Computational Math Modeling

Fall 2013 Course: 570.612 Infrastructure Modeling, Simulation, and Analysis

2010 Cornell University, Ithaca, NY
TA Fellow for the Teaching Assistant Development Program

2006 – 2010 Cornell University, Ithaca, NY
Teaching Assistant Trainer
Short courses: Diversity in the classroom, Learning Styles, Classroom Presence, Classroom Ethics, and Stress Management

2005 – 2006 Cornell University, Ithaca, NY
Teaching Assistant
Courses: Earthquake Engineering (class size: 20 undergraduates, 20 graduate students),
Civil Infrastructure Systems (class size: 15 undergraduates, 10 graduate students)
Awards: Departmental TA of the Year (2006)

PROFESSIONAL EXPERIENCE

2011 – 2012 Homeland Security Studies and Analysis Institute, Arlington, VA
Senior Associate Analyst

Awards: Individual Excellence Award (2012), Team Excellence Award (2012), and Platt
Award for outstanding paper (2012)

2004 DMJM+Harris, (now AECOM), Baltimore, MD
Intern

2003 Maunsell Pty Ltd, (now AECOM), Melbourne, VIC, Australia
Intern

2003-2004 Johns Hopkins University, Baltimore, MD
Undergraduate research assistant
Project: Grain-scale processes governing shear band initiation and evolution in sands
(Advisor: Dr. Amy Rechenmacher)
Project: Perspectives on the Evolution of Structures (Advisor: Dr. Benjamin Schafer)

STUDENT ADVISING

Chengwei Zhai (UMich MS '17)
Project: "A bottom-up assessment of reactive and proactive community mitigation strategies
under climate change"

Thomas Chen (JHU BS '16)
Project: "Google search volume as a proxy for post-hurricane behaviors: Initial results"

Sara Schwetschenau (JHU MS '14, current position: PhD student at Carnegie Mellon)
Project: "Synthetic histories of pipe breaks in urban areas"

Jin Yang (JHU PhD '14, expected)
Project: "Interdependent network assessment and performance"

Aaron Brown (JHU MS '13, current position: DNV-GL)
Project: "Interdependent network assessment and performance"

ACADEMIC SERVICE

2014-2015 STEM Achievement in Baltimore Elementary Schools (SABES)
Johns Hopkins University
Facilitator

2007 - 2010 Civil and Environmental Engineering Graduate Student Association
Cornell University

