Cameron A. MacKenzie

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EDUCATION

Ph.D., School of Industrial Engineering, University of Oklahoma, 2012
　　　Dissertation: *Interdependent Impacts of Disruption Management: Risk-Based Applications to Port Closures, Natural Disasters, and Oil Spills*

M.S., Department of Management Science and Engineering, Stanford University, 2009

M.A., School of International Affairs, The George Washington University, 2003

B.S., Department of Mathematics, Indiana-Purdue University at Fort Wayne, 2001

B.A., Department of History and Department of French, Indiana-Purdue University at Fort Wayne, 2001

PROFESSIONAL WORK EXPERIENCE

2015 – present　Assistant Professor, Department of Industrial and Manufacturing Systems Engineering
Iowa State University

2016 – 2019　Research Associate, Simulation, Modeling and Decision Science Group, Ames Lab

2012 – 2015　Assistant Professor, Defense Resources Management Institute
Naval Postgraduate School

2009 – 2012　Graduate Research Assistant, School of Industrial Engineering
University of Oklahoma

Summer 2011　Summer Doctoral Institute Fellow
Center for International Business Education and Research, School of Business
The George Washington University

Summer 2007　Summer Associate, The RAND Corporation

2003 – 2006　Senior Associate, The Cohen Group

PAPERS

Journal Publications (* indicates graduate student author)
Zobel, C.W., C.A. MacKenzie, M. Baghersad, and Y. Li. 2021. "Establishing a Frame of Reference for Measuring Disaster Resilience." *Decision Support Systems*, 140: 113406.

Giahi, R.*, C.A. MacKenzie, and C. Hu. 2020. "Design Optimization for Resilience for Risk-Averse Firms." *Computers & Industrial Engineering*, 139: 106122.

Lei, X.* and C.A. MacKenzie. 2020. "Distinguishing between Common Cause Variation and Special Cause Variation in a Manufacturing System: A Simulation of Decision Making for Different Types of Variation." *International Journal of Production Economics*, 220: 107446.

MacKenzie, C.A., K.A. Bryden, and A. Prisacari. 2020. "Integrating Narratives into Decision Making for Complex Systems Engineering Problems." *Systems Engineering*, 23 (1): 65-81.

Rane, V.* and C.A. MacKenzie. 2020. "Evaluating Students with Online Testing Modules in Engineering Economics: A Comparison of Student Performance with Online Testing and with Traditional Assessments." *The Engineering Economist*, 65 (3): 213-235.

Sherwin, M.*, H. Medal, C.A. MacKenzie, and K.J. Brown. 2020. "Identifying and Mitigation Supply Chain Risks Using Fault Tree Optimization." *IISE Transactions*, 52 (2): 236-254. (Honorable Mention for Best Paper in *IISE Transactions*)

Lei, X.* and C.A. MacKenzie. 2019. "Assessing Risk in Different Types of Supply Chains with a Dynamic Fault Tree." *Computers & Industrial Engineering*, 137: 106061.

MacKenzie, C.A. and C. Hu. 2019. "Decision Making under Uncertainty for Design of Resilient Engineered Systems." *Reliability Engineering & System Safety*, 192: 106171.

Regnier, E. and C.A. MacKenzie. 2019. "The Hurricane Decision Simulator: A Tool for Marine Forces in New Orleans to Practice Operations Management in Advance of a Hurricane." *Manufacturing & Service Operations Management*, 21 (1): 103-120. (Finalist for 2017 Manufacturing & Service Operations Management Practice-Based Competition; Finalist for 2017 Public Sector OR Best Paper Award)

Alhasan, A., I. Nlenanya, O. Smadi, and C.A. MacKenzie, C.A. 2018. "Impact of Pavement Surface Condition on Roadway Departure Crash Risk in Iowa." *Infrastructures*, 3 (2).

Sadoughi, M.*, C. Hu, C.A. MacKenzie, A. Eshghi, and S. Lee*. 2018. "Sequential Exploration-Exploitation with Dynamic Trade-off for Efficient Reliability Analysis of Complex Engineered Systems." *Structural and Multidisciplinary Optimization*, 57 (1): 235-250.

Sadoughi M.*, M. Li*, C. Hu, C.A. MacKenzie, S. Lee*, and A. T. Eshghi. 2018. "High-Dimensional Reliability Analysis of Engineered Systems Involving Computationally Expensive Black-Box Simulations." *Journal of Mechanical Design*, 140 (7): 071401-1-071401-12.

Sivaprasad, S.* and C.A. MacKenzie, 2018. "The Hurwicz Decision Rule's Relationship to Decision Making with the Triangle and Beta Distributions and Exponential Utility." *Decision Analysis*, 15 (3); 139-153.

Stallard (Voelker), M.M.*, C.A. MacKenzie, and F.E. Peters. 2018. "Risk Assessment on Visual Inspection Methods for Cast Metal Surfaces." *Journal of Manufacturing Systems*, 48 (A): 97-106.

MacKenzie, C.A. and A. Apte. 2017. "Modeling Disruption in a Fresh Produce Supply Chain." *International Journal of Logistics Management*. 28 (2): 656-679.

MacKenzie, C.A., H. Baroud, and K. Barker. 2016. "Optimal Resource Allocation for Recovery of Interdependent Systems: Application to the *Deepwater Horizon* Oil Spill." *Annals of Operations Research* 236 (1): 103-129.

MacKenzie, C.A. and C.W. Zobel. 2016. "Allocating Resources to Enhance Resilience, with Application to Superstorm Sandy and an Electric Utility." *Risk Analysis* 36 (4): 847-862.

Gallagher, M.A., D.A. Boerman, C.A. MacKenzie, and D.M. Blum. 2016. "Improving Risk Assessment Communication." *Military Operations Research Journal* 21 (1): 5-20.

MacKenzie, C.A. 2014. "Summarizing Risk Using Risk Measures and Risk Indices." *Risk Analysis* 34 (12): 2143-2162.

MacKenzie, C.A., K. Barker, and J.R. Santos. 2014. "Modeling a Severe Supply Chain Disruption and Post-Disaster Decision Making with Application to the Japanese Earthquake and Tsunami." *IIE Transactions* 46 (12): 1243-1260.

MacKenzie, C.A., T.B. Trafalis, and K. Barker. 2014. "Non-Gaussian Bayesian Kernel Methods for Binary and Online Learning Problems." *Statistical Analysis and Data Mining* 7 (6): 434-449.

Maalouf, M., C.A. MacKenzie, S. Radakrishnan, and M. Court. 2014. "A New Fuzzy Logic Approach to Capacitated Dynamic Dial-a-Ride Problem." *Fuzzy Sets and Systems* 255: 30-40.

MacKenzie, C.A. and K. Barker. 2013. "Empirical Data and Regression Analysis for Estimation of Infrastructure Resilience, with Application to Electric Power Outages." *Journal of Infrastructure Systems* 19 (1): 25-35.

Winterstein, S.R. and C.A. MacKenzie. 2013. "Extremes of Nonlinear Vibration: Models Based on Moments, L-Moments, and Maximum Entropy." *Journal of Offshore Mechanics and Arctic Engineering* 135 (2): 021602.1-021602.7.

MacKenzie, C.A., K. Barker, and F.H. Grant. 2012. "Evaluating the Consequences of an Inland Waterway Port Closure with a Dynamic Multiregional Interdependency Model." *IEEE Transactions on Systems, Man, and Cybernetics, Part A: Systems and Humans* 42 (2): 359-370.

MacKenzie, C.A., J.R. Santos, and K. Barker. 2012. "Measuring Changes in International Production from a Disruption: Case Study of the Japanese Earthquake and Tsunami." *International Journal of Production Economics*. 138 (2): 293-302.

MacKenzie, C.A. 2010. "Book Review on Douglas Hubbard, *Failure of Risk Management: Why It's Broken and How to Fix It*." *Risk Analysis* 30 (2): 524-525.

MacKenzie, C.A. 2002. "Building Democracy in Pakistan." *Journal of Public and International Affairs*, 13: 104-122.

Book Chapters (* indicates graduate student author, ** indicates undergraduate student author)

Min, J., C.A. MacKenzie, and S.M. Ryan. 2021. "Life Cycle Costing with Environmental Factors." To appear in *Maynard's Industrial Engineering Handbook*, 6th ed.

MacKenzie, C.A. and A. Al Kazimi**. 2021. "Optimal Resource Allocation Model to Prevent, Prepare, and Respond to Multiple Disruptions, with Application to the *Deepwater Horizon* oil spill and Hurricane Katrina." In S. Chatterjee, R.T. Brigantic, and A.M. Waterworth, eds., *Applied Risk Analysis for Guiding Homeland Security Policy and Decisions*. Wiley, 284-299.

Sonar, A.* and C.A. MacKenzie. 2017. "Supply Chain Disruption Preparedness Measures Using Wagner-Whitin Model." In Y. Khojasteh, ed., *Supply Chain Risk Management: Advanced Tools, Models, and Developments.* Singapore: Springer, 123-137.

Vinayak, A.* and C.A. MacKenzie. 2017. "Quantitative Model for Analyzing Market Response During Supply Chain Disruptions." In Y. Khojasteh, ed., *Supply Chain Risk Management: Advanced Tools, Models, and Developments.* Singapore: Springer, 139-153.

Everly, R.E.*, D.C. Limmer*, and C.A. MacKenzie. 2015. "Cost-Effectiveness Analysis of Autonomous Aerial Platforms and Communication Payloads." In F. Melese, A. Richter, and B. Solomon, eds., *Military Cost-Benefit Analysis: Theory & Practice*. New York: Routledge, 401-423. (This chapter comes from Everly and Limmer's master thesis, which I advised.)

Wall, K.D. and C.A. MacKenzie. 2015. "Multiple Objective Decision Making." In F. Melese, A. Richter, and B. Solomon, eds., *Military Cost-Benefit Analysis: Theory & Practice*. New York: Routledge, 197-236.

Papers in Submission (* indicates graduate student author)
Giahi, R.*, C.A. MacKenzie, and C. Hu. 2020. "Optimizing the Flexible Design of Hybrid Renewable Energy Systems." Completed two rounds of reviews with *Engineering Economist*.

Lei, X.*, C.A. MacKenzie, and Q. Li. 2020. "Analysis and Forecasting of Mass Shootings Using Change Point Detection." Completed one round of review with *Risk Analysis*.

Sherwin, M., H. Medal, and C.A. MacKenzie. 2020. "Quantitative Assessment of Factors that Influence and Predict Supplier Reliability Using Logistic Regression." Completed one round of review with *Manufacturing Service and Operations Management*.

Conference Proceedings (* indicates graduate student author, ** indicates undergraduate student author)
Shukla, C.* and C.A. MacKenzie. 2020. "Billion-Dollar Natural Disasters: What Does the Future Look Like?" In *Proceedings of the 2019 Industrial and Systems Engineering Conference*. Institute for Industrial and Systems Engineering (IISE) Annual Conference and Expo, November 1-3, Virtual. (Winner of best paper award for the Engineering Economy Division.)

Giahi, R.*, C.A. MacKenzie, and C. Hu. 2019. "A Multi-Stage Optimization Model for Flexibility in Engineering Design." In E. Romeijn, A. Schaefer, and R. Thomas, eds., *Proceedings of the 2019 Industrial and Systems Engineering Conference*. IISE Annual Conference and Expo, May 18, Orlando, Florida. (Winner of best paper award for the Engineering Economy Division.)

Mittal, A.*, C.A. MacKenzie, C.C. Krejci, and T.B. Elkins**. 2018. "Modeling Uncertainty in Rooftop PV Investment Return." In K. Barker, D. Berry, and C. Rainwater, eds., *Proceedings of the 2018 Industrial and Systems Engineering Conference*. Institute for Industrial and Systems Engineering (IISE) Annual Conference and Expo, May 19-22, Orlando, FL.

Weflan, E.*, K. Korniejczuk*, S. Lau*, S. Kryk*, C.A. MacKenzie, and I.V. Rivero. 2018. "Application of Bayesian Belief Network for Agile Kanban Backlog Estimation." In K. Barker, D. Berry, & C. Rainwater, eds., *Proceedings of the 2018 Industrial and Systems Engineering Conference*. IISE Annual Conference and Expo, May 19-22, Orlando, FL.

Li, Z.*, C. Krejci, C.A. MacKenzie, J. Jackman, G. Hu, C.Y. Hu, A.A. Graunke, and G.A. Burnett. 2017. "Capacity Planning and Production Scheduling for Aircraft Painting Operations." In K. Coperich,

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E. Cudney, and H. Nembhard, eds. *Proceedings of the 2017 Industrial and Systems Engineering Conference*. IISE Annual Conference and Expo, May, Pittsburgh, Pennsylvania.

Sadoughi, M.*, M.* Li, C. Hu, and C.A. MacKenzie. 2017. "High-Dimensional Reliability Analysis of Engineered Systems Involving Computationally Expensive Black-Box Simulations." ASME,IDETC/CIE, August, Cleveland, Ohio.

Sadoughi, M.*, C. Hu, C.A. MacKenzie, and S. Lee. 2017. "A Maximum Expected Utility Method for Reliability Analysis of Complex Engineered Systems." To appear in 2017 AIAA Aviation Forum, June, Denver, Colorado.

Zhang, M.*, C.A. MacKenzie, C. Krejci, J. Jackman, G. Hu, C.Y. Hu, G.A. Burnett, and A.A. Graunke. 2017. "Probabilistic Methods for Long-Term Demand Forecasting for Aviation Production Planning." In K. Coperich, E. Cudney, and H. Nembhard, eds. *Proceedings of the 2017 Industrial and Systems Engineering Conference*. IISE Annual Conference and Expo, May, Pittsburgh, Pennsylvania.

Al Kazimi, A.** and C.A. MacKenzie. 2016. "The Economic Costs of Natural Disasters, Terrorist Attacks, and Other Calamities: An Analysis of Economic Models that Quantify the Losses Caused by Disruptions." In *Proceedings of the 2016 Systems and Information Engineering Design Symposium*. Systems and Information Engineering Design Symposium. April, Charlottesville, Virginia, pp. 32-37.

Du, Y.*, M. Dorneich, B. Steward, and C.A. MacKenzie. 2016. "A Bayesian-Influence Model for Error Probability Analysis of Combine Operations in Harvesting. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*. Human Factors and Ergonomics Society Annual Meeting, September, Washington, D.C., pp. 1414-1418.

MacKenzie, C.A. and E. Regnier. 2015. "A Hurricane Decision Simulator for the U.S. Marine Corps Reserve Forces in New Orleans." In *Proceedings of the Western Decision Sciences Institute Annual Meeting*. Western Decision Sciences Institute Annual Meeting, March-April, Maui, Hawaii.

MacKenzie, C.A. 2013. "Optimal Resource Allocation for Preparedness and Recovery of Interdependent Systems." In *Proceedings of the Western Economics Association International Annual Conference*, Western Economics Association International Annual Conference, June, Seattle, Washington.

Baroud, H., K. Barker, R. Lurvey, and C.A. MacKenzie. 2013. "Bayesian Kernel Models for Disruptive Event Data." In A. Krishnamurthy and W.K.V. Chan, eds. *Proceedings of the 2013 Industrial and Systems Engineering Research Conference*. Institute for Industrial Engineers (IIE) Annual Meeting and Expo, May, San Juan, Puerto Rico.

MacKenzie, C.A., H. Baroud, and K. Barker. 2012. "Optimal Resource Allocation for Recovery of Interdependent Systems: Case Study of the *Deepwater Horizon* Oil Spill." In G. Lim and J.W. Herrmann, eds. *Proceedings of the 2012 Industrial and Systems Engineering Research Conference*. IIE Annual Meeting and Expo, May, Orlando, Florida.

Maalouf, M., C.A. MacKenzie, S. Radakrishnan, and M. Court. 2012. "A New Fuzzy Logic Approach to Dynamic Dial-a-Ride Problem." In G. Lim and J.W. Herrmann, eds. *Proceedings of the 2012 Industrial and Systems Engineering Research Conference*. IIE Annual Meeting and Expo, May, Orlando, Florida.

MacKenzie, C.A. and K. Barker. 2011. "Conceptualizing the Broader Impacts of Industry Preparedness Strategies with a Risk-Based Input-Output Model." In *Proceedings of the 19th International Input-*

Output Conference. International Input-Output Association, June, Alexandria, Virginia. Access http://www.iioa.org/Conference/19th-downable%20paper.htm.

MacKenzie, C.A. and S.R. Winterstein. 2011. "Comparing L-Moments and Conventional Moments to Model Current Speeds in the North Sea." In T. Doolen and E. Van Aken, eds. *Proceedings of the 2011 Industrial Engineering Research Conference*. IIE Annual Meeting and Expo, May, Reno, Nevada.

Winterstein, S.R. and C.A. MacKenzie. 2011. "Extremes of Nonlinear Vibration: Models Based on Moments, L-Moments, and Maximum Entropy." In *Proceedings of the 30th International Conference on Ocean, Offshore and Artic Engineering*. OMAE 2011, June, Rotterdam, Netherlands.

Conference and Seminar Presentations (* indicates graduate student author, ** indicates undergraduate student author)

MacKenzie, C.A. and C. Shukla*. 2020. "Billion-Dollar Natural Disasters: What Does the Future Look Like?" Society for Risk Analysis (SRA) Annual Meeting, December, Virtual.

Lei, X.* and C.A. MacKenzie. 2020. "Analysis and Forecasting of Mass Shootings Using Change Point Detection." Institute of Industrial & Systems Engineers (IISE) Annual Meeting, November, Virtual.

Shukla, C.* and C.A. MacKenzie. 2020. "Billion-Dollar Natural Disasters: What Does the Future Look Like?" IISE Annual Meeting, November, Virtual.

Lei, X.* and C.A. MacKenzie. 2019. "Analysis and Forecasting of Mass Shootings Using Change Point Detection." SRA Annual Meeting, December, Arlington, Virginia. (Winner of Student Merit Award from the Defense and Security Specialty Group)

MacKenzie, C.A. and B. Landowski*. 2019. "A Multiple Decision-Maker Approach to Allocating Resources for Disruptive Events." SRA Annual Meeting, December, Arlington, Virginia.

MacKenzie, C.A. and A. Stewart*. 2019. "Active Shooter Situations: An Agent-Based Model of Civilian Response Strategy." SRA Annual Meeting, December, Arlington, Virginia.

MacKenzie, C.A. 2019. "Disaster Resilience: Models to Improve Decision Making for Disaster Preparedness and Response." Seminar at Iowa State University, November, Ames, Iowa.

Giahi, R.*, C.A. MacKenzie, and C. Hu. 2019. "A Multi-Stage Optimization Model for Flexibility in Engineering Design." Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, October, Seattle, Washington.

MacKenzie, C.A. and R. Giahi*. 2019. "Enhancing Resilience of Complex Infrastructure Components." INFORMS Annual Meeting, October, Seattle, Washington.

MacKenzie, C.A. and X. Lei*. 2019. "Analysis and Forecasting of Mass Shootings Using Change Point Detection." INFORMS Annual Meeting, October, Seattle, Washington.

Regnier, E.D. and C.A. MacKenzie. 2019. "Risk Judgments in Hurricane Preparation Decisions." 30th European Conference on Operational Research, June 23-26, Dublin, Ireland.

Giahi, R.*, C.A. MacKenzie, and C. Hu. 2019. "A Multi-Stage Optimization Model for Flexibility in Engineering Design." Institute of Industrial & Systems Engineers (IISE) Annual Meeting, May, Orlando, Florida.

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Lei, X.*, C.A. MacKenzie, and Q. Li. 2019. "Analysis and Forecasting of Mass Shootings Using Change Point Detection." IISE Annual Meeting, May 18-21, Orlando, Florida.

MacKenzie, C.A., A. Mittal*, K. Flynn**, and C. Krejci. 2019. Online Decision Support Tool for Residential Rooftop Photovoltaic Adoption. IISE Annual Meeting, May, Orlando, Florida.

MacKenzie, C.A., Z. Amenda*, and R. Suresh*. 2018. "Capabilities-Based Planning for Emergency Preparedness." Society for Risk Analysis (SRA) Annual Meeting, December, New Orleans, Louisiana.

Suresh, R.* and C.A. MacKenzie. 2018. "A Value-Focused Thinking Approach to Assessing Community Resilience." SRA Annual Meeting, December, New Orleans, Louisiana. (Winner of Student Merit Award from the Defense and Security Specialty Group)

MacKenzie, C.A., Z. Amenda*, and R. Suresh*. 2018. "Capabilities-Based Planning for Emergency Preparedness." Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, November, Phoenix, Arizona.

Giahi, R.*, C.A. MacKenzie, and C. Hu. 2018. "Design Optimization under Long-Range Uncertainty." INFORMS Annual Meeting, November, Phoenix, Arizona.

Giahi, R.*, C.A. MacKenzie, and C. Hu. 2018. "Design Optimization under Long-Range Uncertainty." Seminar at Iowa State University, October, Ames, Iowa.

Giahi, R.* and C.A. MacKenzie, C.A. 2018. "Design Optimization under Long-Range Uncertainty." Institute for Industrial and Systems Engineers (IISE) Annual Conference and Expo, May, Orlando, Florida.

Giahi, R.*, C.A. MacKenzie, and C. Hu. 2018. "Optimizing Design for Resilience for Risk-Averse Firms Using Expected Utility and Value-at-Risk." IISE Annual Conference and Expo, May, Orlando, Florida.

Lei, X.* and C.A. MacKenzie. 2018. "Supply Chain Risk Analysis Using Dynamic Fault Tree." IISE Annual Conference and Expo, May, Orlando, Florida.

Lei, X.*, C.A. MacKenzie, and C.C. Krejci. 2018. "Common Cause and Special Cause Variation Analysis Using Simulation with Naturalist Decision Model." IISE Annual Conference and Expo, May, Orlando, Florida.

Mittal, A.*, C.A. MacKenzie, C.C. Krejci, C., & T.B. Elkins**. 2018. "Modeling Uncertainty in Rooftop PV Investment Return." IISE Annual Conference and Expo, May, Orlando, Florida.

Rane, V.* and C.A. MacKenzie. 2018. "Online Testing as a Gauge for Student Performance in a Large Engineering Class." IISE Annual Conference and Expo, May, Orlando, Florida.

Weflen, E.*, K. Korniejczuk*, S. Lau*, S. Kryk*, and C.A. MacKenzie, and I.V. Rivero. 2018. "Application of Bayesian Belief Network for Agile Kanban Backlog Estimation." IISE Annual Conference and Expo, May, Orlando, Florida.

MacKenzie, C.A., E. Regnier, S. Hetherington**, A. Prisacari, and S. Sivaprasad*. 2017. "Evaluating the Hurricane Decision Simulator." SRA Annual Meeting, Dec. 11-13, Arlington, Virginia.

MacKenzie, C.A. 2017. "Metrics for Resilience: What are We Really Measuring?" SRA Annual Meeting, December, Arlington, Virginia.

MacKenzie, C.A. 2017. "Mitigating Risk of Disruptive Events: Application to Supply Chains and Allocating Resources for Preparedness." Seminar at Iowa State University, October, Ames, Iowa.

Giahi, R.*, C.A. MacKenzie, and C. Hu. 2017. "Design Optimization for Resilience for Risk-Averse Firms." Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, October, Houston, Texas.

Lei, X.* and C.A. MacKenzie. 2017. "Assessing Supply Chain Risk Using Dynamic Fault Trees." INFORMS Annual Meeting, October, Houston, Texas.

MacKenzie, C.A., X. Bai**, and A. Fristo**. 2017. "Simulating Severe Supply Chain Disruptions with Multiple Suppliers and Firms." INFORMS Annual Meeting, October, Houston, Texas.

MacKenzie, C.A., E. Regnier, S. Hetherington**, A. Prisacari*, and S. Sivaprasad*. 2017. "Evaluating the Hurricane Decision Simulator." INFORMS Annual Meeting, October, Houston, Texas.

MacKenzie, C.A. and C.W. Zobel. 2017. "Enhancing Resilience of the Electric Power Sector after Hurricane Sandy." INFORMS Annual Meeting, October, Houston, Texas. SRA Annual Meeting, December, Arlington, Virginia.

MacKenzie, C.A. 2017. "Lunch and Learn with General Mills." General Mills, July, Golden Valley, Minnesota.

MacKenzie, C.A. and S. Sivaprasad*. 2017. "Comparing Decisions with Intervals and Probability Distributions." Advances in Decision Analysis, June, Austin, Texas.

Regnier, E. and C.A. MacKenzie. 2017. "The Hurricane Decision Simulator: A Tool for Marine Forces in New Orleans to Practice Operations Management in Advance of a Hurricane." Manufacturing and Service Operations Conference, June, Chapel Hill, North Carolina.

Li, X.*, M. Zhang*, C. Krejci, C.A. MacKenzie, J. Jackman, G. Hu, C.Y. Hu, G.A. Burnett, and A.A. Graunke. 2017. "Capacity planning and production scheduling for aircraft painting operations." Institute for Industrial and Systems Engineers (IISE) Annual Conference and Expo, May, Pittsburgh, Pennsylvania.

Vinayak, A. and C.A. MacKenzie. 2017. "Cost Effectiveness Analysis of Supplier Effectiveness Based on SCOR Metrics." IISE Annual Conference and Expo, May, Pittsburgh, Pennsylvania.

Yao, L.* and C.A. MacKenzie. 2017. "Resource Allocation Decisions under Deep Uncertainty, with Application to *Deepwater Horizon* Oil Spill Case Study." IISE Annual Conference and Expo, May, Pittsburgh, Pennsylvania. INFORMS Annual Meeting, October, Houston, Texas.

MacKenzie, C.A., A. Fristo**, and X. Bai**. 2017. "Simulating Severe Supply Chain Disruptions with Multiple Suppliers and Firms." Production Operations Management Society Annual Conference, May Seattle, Washington.

MacKenzie, C.A. 2017. "Enhancing Decision Making to Prevent, Prepare for, Respond to, and Recover from Disruptions." Seminar at University of Texas at Austin, April, Austin, Texas.

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MacKenzie, C.A. and S. Chatterjee. 2017. "Hypergraphs for Representing Cyber-Physical System Complexities and Dependencies." INFORMS Computing Society Meeting, January, Austin, Texas.

Lei, X.* and C.A. MacKenzie. 2016. "Reliability of Hybrid Vehicle System: 2004 Toyota Prius Hybrid Vehicle." Society for Risk Analysis (SRA) Annual Meeting, December, San Diego, California. (Finalist for Engineering and Infrastructure Specialty Group student merit award.)

Zhang, M.* and C.A. MacKenzie. 2016. "Analyzing Different Decision-Making Methods for Situations with Deep Uncertainty." SRA Annual Meeting, December, San Diego, California.

MacKenzie, C.A. and L. Yao. 2016. "Resource Allocation Decisions with Deep Uncertainty." Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, November, Nashville, Tennessee.

Regnier, E. and MacKenzie, C.A. 2016. "Hurricane Decision Simulator." INFORMS Annual Meeting, November, Nashville, Tennessee.

MacKenzie, C.A. 2016. "Enhancing Decision Making Through Narrative and Simulation." Seminar at Argonne National Laboratory, October, Lemont, Illinois.

MacKenzie, C.A., K. Bryden, and A. Prisacari. 2016. "Integrating Narrative into Engineering Decision Making." Resilience Week, August, Chicago, Illinois.

MacKenzie, C.A. and E. Regnier. 2016. "The Online Hurricane Decision Simulator." Institute for Industrial and Systems Engineers Annual Conference and Expo, May, Anaheim, California.

MacKenzie, C.A. and A. Apte. 2016. "Modeling Disruption in a Fresh Produce Supply Chain." Production Operations Management Society Annual Conference, May, Orlando, Florida.

Al-Kazimi, A.** and C.A. MacKenzie. 2016. "The Economic Costs of Natural Disasters, Terrorist Attacks, and Other Calamities: An Analysis of Economic Models That Quantify the Losses Caused by Disruptions." Systems and Information Engineering Design Symposium, April, Charlottesville, Virginia.

MacKenzie, C.A. 2016. "Industrial Engineering Solutions to Non-Industry Problems: How Industrial Engineering Methods Are Being Applied to Healthcare, Humanitarian Aid, Public Policy, and Sports." Presentation to the Iowa State student chapter of IIE, Iowa State University, March, Ames, Iowa.

MacKenzie, C.A. 2015. "How Much Should We Spend on Preparing for Disruptions?" SRA Annual Meeting, December, Arlington, Virginia.

MacKenzie, C.A. 2015. "How I Learned to Stop Worrying and Love Disruptions." Presentation to the Industrial and Manufacturing Systems Engineering graduate seminar, Iowa State University, November, Ames, Iowa.

MacKenzie, C.A. 2015. "How Much Should We Spend on Preparing for Disruptions?" INFORMS Annual Meeting, November, Philadelphia, Pennsylvania.

MacKenzie, C.A. and C.W. Zobel. 2015. "Allocating Resources to Enhance Resilience, with Application to Superstorm Sandy." INFORMS Annual Meeting, November, Philadelphia, Pennsylvania.

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MacKenzie, C.A. and C.W. Zobel. 2015. "Optimization Model to Increase Resilience, with Application to the Electric Power Network." SafeLife-X Final Conference, June, Brussels, Belgium.

MacKenzie, C.A. 2015. "Resilience Course: State-of-the-art, Basic Principles, Approaches and Theoretical Background, Methods, Tools, Indicators." SafeLife-X Final Conference, June, Brussels, Belgium.

Regnier, E. and C.A. MacKenzie. 2015. "A Hurricane Decision Simulator for the U.S. Marine Corps Reserve Forces in New Orleans." Western Decision Sciences Institute Annual Meeting, April, Maui, Hawaii.

MacKenzie, C.A. and C.W. Zobel. 2014. "Allocating Resources to Enhance Resilience." SRA Annual Meeting, December, Denver, Colorado.

MacKenzie, C.A. and A. Apte. 2014. "Model of Supply Chain Vulnerability for Fresh Produce." INFORMS Annual Meeting, November, San Francisco, California.

MacKenzie, C.A. 2014. "Allocating Resources to Enhance Resilience." IIE Annual Conference and Expo, June, Montreal, Canada.

MacKenzie, C.A. 2013. "Trading Off Allocating Resources to Prevent, Prepare for, and Respond to Disruptions." INFORMS Annual Meeting, October, Minneapolis, Minnesota.

MacKenzie, C.A. 2013. "Deploying Simulation to Compare among Different Risk Reduction Strategies for Supply Chains." INFORMS Annual Meeting, October, Minneapolis, Minnesota.

MacKenzie, C.A. 2013. "Optimal Resource Allocation for Preparedness and Recovery of Interdependent Systems." Western Economic Association International Annual Conference, June, Seattle, Washington.

MacKenzie, C.A., K. Barker, and J.R. Santos. 2012. "A Simulation of Severe International Supply Chain Disruptions." Poster platform session, SRA Annual Meeting, December, San Francisco, California.

MacKenzie, C.A., and K. Barker. 2012. "Disruption Management during Supply Chain Disruptions." INFORMS Annual Meeting, October, Phoenix, Arizona.

MacKenzie, C.A. and K. Barker. 2012. "Optimal Resource Allocation for Preparedness and Recovery of Interdependent Systems." INFORMS Annual Meeting, October, Phoenix, Arizona.

MacKenzie, C.A., H. Baroud, and K. Barker. 2012. "Optimal Resource Allocation for Recovery of Interdependent Systems." Industrial and Systems Engineering Research Conference, May, Orlando, Florida.

MacKenzie, C.A., K. Barker, and J.R. Santos. 2012. "A Simulation of Severe International Supply Chain Disruptions." Industrial and Systems Engineering Research Conference, May, Orlando, Florida.

MacKenzie, C.A. and K. Barker. 2011. "Optimal Resource Allocation for Recovery from Multimodal Transportation Disruptions." SRA Annual Meeting, December, Charleston, South Carolina.

MacKenzie, C.A. and K. Barker. 2011. "Quantifying the Interdependent Effects of Supply Chain Disruptions and Industry Preparedness Mitigation Strategies." INFORMS Annual Meeting, November, Charlotte, North Carolina.

Cameron A. MacKenzie
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MacKenzie, C.A. and K. Barker. 2011. "International Economic Impacts of Supply Chain Disruptions." INFORMS Annual Meeting, November, Charlotte, North Carolina.

MacKenzie, C.A. and K. Barker. 2011. "Optimal Resource Allocation for Recovery of Interdependent Systems." INFORMS Annual Meeting, November, Charlotte, North Carolina.

MacKenzie, C.A. and K. Barker. 2011. "Modeling Interdependent Impacts of Industry Preparedness Strategies." Industrial Engineering Research Conference, May, Reno, Nevada.

MacKenzie, C.A. and K. Barker. 2010. "Integrating Simulation with Risk-based Interdependency Modeling to Evaluate the Consequences of an Inland Waterway Port Closure." SRA Annual Meeting, December, Salt Lake City, Utah.

MacKenzie, C.A. and T.B. Trafalis. 2010. "Bayesian Kernel Models for Non-Gaussian Processes." INFORMS Annual Meeting, November, Austin, Texas.

MacKenzie, C.A, K. Barker, and T.L. Landers. 2010. "Effect of Alternative Shipping Strategies after an Inland Port Closure." Industrial Engineering Research Conference, June, Cancun, Mexico.

MacKenzie, C.A. 2009. "Applying Flexibility and Robustness to Emergency Preparedness." Technology Management Program, June, Vancouver, Canada.

MacKenzie, C.A. 2008. "Constructing a Risk Index." SRA Annual Meeting, December, Boston, Massachusetts.

MacKenzie, C.A. and H. Willis. 2008. "All Along the Watchtower: Using Risk Analysis to Evaluate Potential Solutions to Border Surveillance." Risk Symposium, Los Alamos National Laboratory, March, Santa Fe, New Mexico.

MacKenzie, C.A., A. Lantsberg, and L. Salmon. 2007. "Risks of a Dirty Bomb in the U.S." National Security Seminar, Carnegie Mellon University, August, Pittsburgh, Pennsylvania.

FUNDED RESEARCH PROJECTS

2020 – present   Full Trucks for Higher Profits: Transportation Collaboration among Farmers and Food Hubs in the Midwest. Iowa Grand Valley: PI, Jason Grimm; Co-PI, Cameron MacKenzie; Co-PI, Anuj Mittal; Co-PI, Sarah Swan Ray. $39,930. ($8,000 for Iowa State.)

2019 – present   Economic Analysis of the Distributed Solar and Wind Power. Iowa State University: PI, K. Jo Min; Co-PI, Cameron MacKenzie. Iowa Energy Center. Industrial and Manufacturing Systems Engineering Exploratory Research Program. $275,741.

2020 – 2020   Data Analytics Proposal: Detecting Abnormalities in the Swine Disease Reporting System. PIs: Cameron MacKenzie, Qing Li, Daniel Linares. Exploratory Research Program. $16,000.

2019 – 2020   IMSE ABET Assessment Grant. PI: Cameron MacKenzie, Co-PI: Sarah Ryan. $5,000.

2019 – 2020   Abnormality Detection in Manufacturing Process with Data Analytics. Iowa State University: PI, Guiping Hu; Co-PI, Cameron MacKenzie. Danfoss (Center for e-design). $15,000.

2019 – 2020   Planning Grant: Engineering Research Center or Hazard Mitigation and Community Resilience (HMCR). Iowa State University: PI, Sri Sritharan; Co-PI, Cameron MacKenzie; Co-PI, Johanna Amaya-Leal; Co-PI, An Chen; Co-PI, Sara Hamideh; Co-PI Cristina Poleacovschi. National Science Foundation. $100,000.

2019 – 2020   Virtual Production Systems Verification and Validation. Iowa State University: PI, Cameron MacKenzie; Co-PI, John Jackman. Boeing Defense Systems. $56,868.

2019 – 2019   Profit Models for Designing Resilient Engineered Syste4ms. Iowa State University: PI, Cameron MacKenzie. Industrial and Manufacturing Systems Engineering Exploratory Research Program. $18,847.

2018 – 2018   Measuring Capabilities for Emergency Preparedness. Iowa State University: PI: Cameron MacKenzie. Industrial and Manufacturing Systems Engineering Exploratory Research Program. $7,533.

2018 – 2018   Research on Dr. Deming's Common Cause and Special Cause. Iowa State University: PI: Cameron MacKenzie. Dick Steele. $10,500.

2018 – 2018   Measuring the Effectiveness of the Hurricane Decision Simulator. Ames Lab: PI, Cameron MacKenzie. Naval Postgraduate School. $35,000.

2017 – 2019   Digital Innovation Design. Iowa State University: PI: Frank Peters; Co-PI, Cameron MacKenzie; Co-PI, John Jackman; Co-PI, Matt Frank. Defense Logistics Agency. $2,840,000.

2017 – 2018   Design Optimization under Long-Range Uncertainty. Iowa State University: PI, Cameron MacKenzie; Co-PI, Chao Hu. Center for e-design. $30,000.

2017 – 2018   Engaging Students through Online Testing Modules for a High-Enrollment Engineering Economics Course. Iowa State University: PI, Cameron MacKenzie. Miller Faculty Fellowship. $15,000.

2017 – 2017   Measuring the Effectiveness of the Hurricane Decision Simulator. Ames Lab: PI, Cameron MacKenzie. Naval Postgraduate School. $20,000.

2015 – 2016   Airplane Planning Capacity and Planning Tool for Boeing Analytics Scholars. Iowa State University: PI, Carolyn Krejci; Co-PI, Cameron MacKenzie; Co-PI, John Jackman; Co-PI, Guiping Hu. The Boeing Company. $79,408.

2014 – 2015   Marine Forces Reserve Hurricane Simulator Training Tool. Naval Postgraduate School: PI, Andy Hernandez; Co-PI, Cameron MacKenzie; Co-PI, Eva Regnier. Marine Forces Reserve. $31,000.

2013 – 2014   Evaluating Measures of Effectiveness for Security Cooperation Programs. Naval Postgraduate School: Researchers, Cameron MacKenzie and Francois Melese. Defense Security Cooperation Agency. $70,000.

2012 – 2013   Bayesian Kernel Methods for Non-Gaussian Distributions: Binary and Multi-class Classification Systems. University of Oklahoma: PI, Kash Barker; Co-PI, Theodore Trafalis; Senior/key personnel, Cameron MacKenzie. U.S. Army Research, Development and Engineering Command, Army Research Office, Mathematical Sciences Division. $50,000.

TEACHING EXPERIENCE

Assistant Professor, Iowa State University
Engineering Risk Analysis (Fall 2015, Fall 2017, Fall 2019)
Engineering Economic Analysis (Spring 2016, Spring 2017, Fall 2017, Spring 2018, Fall 2018, Spring 2019 online only, Summer 2020 online only, Winter 2021 online only)
Total Quality Management (Fall 2018)
Continuous Quality Improvement of Process (Fall 2016)
Decision Analysis in System Design (Spring 2018, Spring 2019, Spring 2020 online only)
Stochastic Modeling, Analysis, and Simulation (Fall 2019, Fall 2020 half of the course)
Design and Analysis Applications for System Improvement (Spring 2020)

Assistant Professor, Naval Postgraduate School (each course is taught by a team of professors)
Defense Resources Management Course (multiple times 2012-2015)
International Defense Resources Management Course (multiple times 2012-2015)
Multi-Criteria Decision Making (October 2012, November 2013, October 2014)
Senior International Defense Resources Management Course (July 2013, August 2014)
Risk Management (April 2013, January 2014, January 2015)
Naval Air Systems Command Leadership Development Program Capstone (multiple times, 2014-2015)

Co-instructor, University of Oklahoma
Applied Engineering Statistics (Spring 2012)
Risk & Decision Analysis (Fall 2011)

Teaching Assistant, University of Oklahoma
Engineering Experimental Design (Fall 2011)

Teaching Assistant, Stanford University
Engineering Risk Analysis (Winter 2008, Winter 2009)
Project Course for Risk Analysis (Spring 2008, Spring 2009)
Simulation (Spring 2009)

GRADUATE STUDENT ADVISING

Ph.D. Students
Xue Lei. Spring 2022 (expected). *Risk Analysis of Mass Shootings.* (Student merit award from the Security and Defense Specialty Group in the Society for Risk Analysis)

Mark White. Spring 2024 (expected). *Risk Management for Small Business Manufacturers.*

Ramin Giahi. Fall 2020. *Sequential Decision Making and Simulation-Optimization for the Design of Complex Engineering Systems*. (Iowa State University Research Excellence Award)

Master's Students
Iowa State University
Charchit Shukla. Spring 2021 (expected). *An Analysis of US Billion-Dollar Natural Disasters*. (IISE Best Paper Award, Engineering Economy Division)

Steve Paul. Fall 2020. *Optimizing Strategies to Mitigate Risk in a Supply Chain Disruption*.

Sourabh Choudhari. Fall 2020. *A Quality Control Case Study of Kitchen Appliance Production: An Engineering Case for Graduate Education*. (creative component)

Rohit Suresh. Fall 2019. *A Value-Focused Thinking Approach to Measuring Community Resilience*. (Student merit award from the Security and Defense Specialty Group in the Society for Risk Analysis)

Kevin Korniejzcuk. Spring 2019. *Simulating Severe Supply Chain Disruptions with Multiple Suppliers and Firms*. (creative component)

Vrishtee Rane. Fall 2018. *Online Testing Modules for Engineering Economics*.

Krishna Sai Varun Kotta. Spring 2018. *Comparing Decision Making Using Expected Utility, Robust Decision Making, and Information-Gap: Application to Capacity Expansion for Airplane Manufacturing* (creative component).

Brandon Landowski. Summer 2018. *Resource Allocation for Emergency Preparedness with Multiple Decision Makers*.

Sarat Sivaprasad. Fall 2017. *What Does Decision Making with Intervals Really Assume: The Relationship between the Hurwicz Decision Rule and Prescriptive Decision Analysis*.

Lei Yao. Fall 2017. *A Resource Allocation Model for Deep Uncertainty (RAM-DU), with Application to the Deepwater Horizon Oil Spill*.

Aditya Pathak. Summer 2017. *Estimating Production Losses from Disruptions Based on Stock Market Returns: Applications to 9/11 Attacks, the Deepwater Horizon Oil Spill, and Hurricane Sandy*.

Alexandria Stewart. Summer 2017. *Active Shooter Situations: An Agent-Based Model of Civilian Response Strategy*.

Xue Lei. Spring 2017. *Static and Dynamic Fault Tree Analysis with Application to Hybrid Vechicle Systems and Supply Chains*.

Arun Vinayak. Spring 2017. *Quantitative Models for Supply Chain Risk Analysis from a Firm's Perspective*.

Minxiang Zhang. Spring 2017. *Demand Forecasting and Decision Making under Uncertainty for Long-Term Production in Aviation Industry*.

Naval Postgraduate School
Capt. Amanda Nerg, U.S. Air Force, and CPT Kristie M. Stuckenschneider, U.S. Army. Winter 2014. *Domestic Disasters and Geospatial Technology for the Defense Logistics Agency*.

Capt. Michael Tozzollo, U.S. Marines Corps, Summer 2014. *Analysis of United States Foreign Military Financing to Israel: Should the United States Modify the Military Aid?*

LCDR Randall E. Everly, U.S. Navy, and LT David C. Limmer, U.S. Navy, Spring 2013 (joint thesis). *Cost-Effectiveness Analysis of Aerial Platforms and Suitable Communication Payloads.*

SERVICE

Iowa State University
Ad-hoc committee to judge student grade appeal case (2020)
Operations Research / Analytics Resource Management Committee (2020 – present)
College of Engineering Committee on Resilience Research Thrust (2019)
Systems Engineering and Engineering Management Graduate Program Committee (2015 – present)
Public Relations Committee (2016 – 2017)
Board of Regents Review Committee (2015 – 2016)

Reviewer
NSF panel reviewer, 2016, 2018
IIE Transactions
Reliability Engineering & System Safety
IEEE Transactions on Systems, Man, and Cybernetics, Part A: Systems and Humans
IEEE Transactions on Power Systems
Decision Analysis
Risk Analysis
Annals of Operations Research
European Journal of Operations Research
Journal of Cognitive Engineering and Decision Making
International Journal of Logistics Management
International Journal of Production Economics
Environment Systems and Decisions
International Journal of Disaster Risk Reduction
Journal of Cleaner Production
Energies
Omega
Sustainability and Resilient Infrastructure
IEEE Homeland Security Technologies Conference
International Conference on Information Systems for Crisis Response and Management
Reviewed major international research proposal for the Singapore National Research Foundation

Conferences
Track Chair (with Dr. Eva Regnier), Natural Hazards and Operations Research, Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting (2017)
Session organizer on infrastructure risks for 2016 Society for Risk Analysis (SRA) Annual Meeting
Session organizer on decision making in public policy for 2016 Institute for Operations Research and the Management Sciences Annual Meeting
Session organizer on journal publication tips for 2015 INFORMS Annual Meeting
Working group on product integrity risk for workshop on How Risk Assessments Inform National Security Decision Making hosted by Military Operations Research Society and the Security Analysis and Risk Management Association in October 2014

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Session organizer on transportation systems and on homeland security for 2014 Industrial and Systems Engineering Research Conference
Program committee for 2013 SRA Annual Meeting
Poster judge for 2012 and 2013 SRA Annual Meeting
Poster judge for 2013 INFORMS Annual Meeting
Session organizer on risks of transportation disruptions for 2011, 2012, and 2013 SRA Annual Meeting
Session organizer on supply chain disruptions for 2013 INFORMS Annual Meeting

Committees and Clubs
President (2020 – present), Program Chair and President Elect (2019 – 2020), Communications Director (2018 – 2019), Engineering Economy Division, IISE
Editorial Board, *Engineering Economist Journal* (2017 – present)
Chair of Security and Defense Specialty Group for SRA (2019)
Co-Editor, *Decision Analysis Today*, Decision Analysis Society, INFORMS (2016 – present)
Secretary, Junior Faculty Interest Group, INFORMS (2014 – 2016)
Member of Strategic Planning Committee, Defense Resources Management Institute, Naval Postgraduate School (2014 – 2015)
Chair of Engineering and Infrastructure Specialty Group for SRA (2013)
President of INFORMS chapter at University of Oklahoma (2011 – 2012)
Secretary of INFORMS chapter at Stanford University (2007 – 2009)
Member of Committee for Graduate Studies at Stanford University (2008 – 2009)
Writing mentor for undergraduate course on decision analysis, Stanford University (2008 – 2009)
Senior editor for *Stanford Scientific Magazine* (2006 – 2007)
Vice President for Student-Alumni Initiatives for The George Washington Alumni Association (2005 – 2006)
Representative for Student-Alumni Affairs for The Elliott School Graduate Student Council, The George Washington University (2002 – 2003)

Professional Memberships
SRA (2007 – present)
INFORMS (2009 – present)
Institute for Industrial and Systems Engineers (2010 – present)
Production Operations Management (2016 – 2017)
Military Operations Research Society (2017 – 2017)

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