
CAMERON MACKENZIE

I. BACKGROUND, PROFESSIONAL EXPERIENCE AND RECOGNITIONS

A. Education

University of Oklahoma, PhD, Industrial Engineering, 2012
Stanford University, MS, Management Science and Engineering, 2009
The George Washington University, MA, International Affairs, 2003
Indiana-Purdue University at Fort Wayne, BS, Mathematics, 2001
Indiana-Purdue University at Fort Wayne, BA, History and French, 2001

B. Academic Appointments

Associate Professor, Industrial and Manufacturing Systems Engineering (IMSE), Iowa State University (ISU), 2023 – present
Assistant Professor, IMSE, ISU, 2015 – 2023
Assistant Professor, Defense Resources Management Institute, Naval Postgraduate School, 2012 – 2015

C. Other Professional Employment

Research Faculty, VRAC, ISU, 2022-present
Research Associate, Simulation, Modeling and Decision Sciences Group, Ames Lab, 2016 – 2019
Graduate Research Assistant, School of Industrial Engineering, University of Oklahoma, 2009 – 2012
Summer Associate, The RAND Corporation, 2007
Senior Associate, The Cohen Group, 2003 – 2006

D. Honors and Awards

At ISU

1. Institute of Industrial and Systems Engineers (IISE) Engineering Economy Division Teaching Award, 2024
2. IMSE Omurtag Research Excellence Award (senior faculty), 2024
3. Eugene L. Grant Award for “Optimizing the flexible design of hybrid renewable energy systems” *The Engineering Economist*, American Society for Engineering Education (ASEE) Engineering Economy Division, 2023
4. Best paper, Engineering Economy Track, IISE Annual Conference & Expo, 2020
5. Don Grant Faculty Award for Excellence in Undergraduate Education, Alpha Pi Mu (ISU chapter), 2020
6. Honorable Mention Best Paper, *IISE Transactions*, 2020

7. Best paper, Engineering Economy Track, IISE Annual Conference & Expo, 2019
8. Black and Veatch Building a World of Difference Faculty Fellow in Engineering, ISU, 2017
9. Finalist for Public Sector Operations Research Best Paper Competition, Public Sector Operations Research, Institute for Operations Research and the Management Sciences (INFORMS), 2017
10. Finalist for Manufacturing and Service Operations Management Practice-Based Competition, Manufacturing and Service Operations Management, INFORMS, 2017
11. Miller Faculty Fellowship, ISU, 2017

Prior to ISU

12. Judith Liebman Award for outstanding and sustained contributions to student INFORMS chapters, INFORMS, 2012
13. Best Paper, Homeland Security Track, Industrial and Systems Engineering Research Conference, 2012
14. Overall outstanding graduate student, University of Oklahoma, 2011
15. Best Poster Award, Society for Risk Analysis (SRA), 2011
16. Student Merit Award, Engineering and Infrastructure Specialty Group, SRA, 2010

II. SCHOLARSHIP AND RESEARCH/CREATIVE ACTIVITIES

A. Scholarship

Denotes any publication derived from the candidate's thesis/dissertation.

+ Denotes student co-author.

^ Denotes student advised by candidate.

1. Articles in Peer-Reviewed Journals – In Print or Accepted

At ISU

1. Lei X[#] and C MacKenzie, "Quantifying the risk of mass shootings at specific locations", *Risk Analysis*, 44(4), 868-882 (2024). <https://doi.org/10.1111/risa.14197>
2. Oni B⁺, K Madson, and C MacKenzie, "Evaluation of maintenance decisions to optimize navigable inland waterway locks condition", *Journal of Infrastructure Systems* (2024), in press.
3. Shukla, C[#] and C MacKenzie, "Time series analysis and probabilistic model of financial costs of major disasters in the USA", *Environment Systems and Decisions* 44, 30-44 (2024). <https://doi.org/10.1007/s10669-023-09912-3>
4. Lei X[#] and C MacKenzie, "Comparing different models to forecast the number of mass shootings in the United States: An application of forecasting rare event time series data", *PLOS One*, 18(6), e0287427 (2023). <https://doi.org/10.1371/journal.pone.0287427>
5. Nichols, V and C MacKenzie, "Identifying research priorities through decision analysis: A case study for cover crops", *Frontiers in Sustainable Food Systems*, 7, 1040927 (2023). <https://doi.org/10.3389/fsufs.2023.1040927>

6. Nur G⁺, C MacKenzie, and K Min, "Valuing generation system expansion plans under demand uncertainty: A real options approach", *Decision Analytics*, 8, 100263 (2023).
<https://doi.org/10.1016/j.dajour>
7. Giah R[^], C MacKenzie, and C Hu, "Optimizing the flexible design of hybrid renewable energy systems", *The Engineering Economist*, 67(1), 25-51 (2022).
<https://doi.org/10.1080/0013791X.2022.2028047>
8. Weflen E⁺, C MacKenzie, and I Rivero, "An influence diagram approach to automating lead time estimation in agile kanban project", *Expert Systems with Applications*, 187, 115866 (2022). <https://doi.org/10.1016/j.eswa.2021.115866>
9. Jiang Y⁺, Q Li, G Trevisan⁺, D Linhares, and C MacKenzie, "Investigating the relationship of porcine reproductive and respiratory syndrome virus RNA detection between adult/sow farm and wean-to-market age categories", *PLOS One*, 16(7), e0253429 (2021).
<https://doi.org/10.1371/journal.pone.0253429>
10. Zobel C, C MacKenzie, M Baghersad, and Y Li, "Establishing a frame of reference for measuring disaster resilience", *Decision Support Systems*, 140, 113406 (2021).
<https://doi.org/10.1016/j.dss.2020.113406>
11. Giah R[^], C MacKenzie, and C Hu, "Design optimization for resilience for risk-averse firms", *Computers & Industrial Engineering*, 139, 106122 (2020).
<https://doi.org/10.1016/j.cie.2019.106122>
12. Lei X[^] and C MacKenzie, "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 (2020).
<https://doi.org/10.1016/j.ijpe.2019.07.019>
13. MacKenzie C, K Bryden, and A Piscari⁺, "Integrating narratives into decision making for complex systems engineering problems", *Systems Engineering*, 23(1), 65-81 (2020).
<https://doi.org/10.1002/sys.21507>
14. Rane V[^] and C MacKenzie, "Evaluating students with online testing modules in engineering economics: A comparison of student performance with online testing and with traditional assessment", *The Engineering Economist*, 65(3), 213-235.
<https://doi.org/10.1080/0013791X.2020.1784336>
15. Sherwin M⁺, H Medal, C MacKenzie, and K Brown⁺, "Identifying and mitigating supply chain risks using fault tree optimization," *IIE Transactions*, 52(2), 236-254 (2020).
<https://doi.org/10.1080/0013791X.2020.1784336>
16. Lei X[^] and C MacKenzie, "Assessing risk in different types of supply chains with a dynamic fault tree", *Computers & Industrial Engineering*, 137, 106061 (2019).
<https://doi.org/10.1016/j.cie.2019.106061>
17. MacKenzie C and C Hu, "Decision making under uncertainty for design of resilient engineered systems", *Reliability Engineering & System Safety*, 192, 106171 (2019).
<https://doi.org/10.1016/j.ress.2018.05.020>
18. Regnier E and C MacKenzie, "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 (2019).
<https://doi.org/10.1287/msom.2017.0694>

19. Alhasan A, I Nlenanya, O Smadi, and C MacKenzie, "Impact of pavement surface condition on roadway departure crash risk in Iowa", *Infrastructures*, 3(2) (2018).
<https://doi.org/10.3390/infrastructures3020014>
20. Stallard (Voelker) M⁺, C MacKenzie, and F Peters, "Risk assessment on visual inspection methods for cast metal surfaces", *Journal of Manufacturing Systems*, 48(A), 97-106 (2018).
<https://doi.org/10.1016/j.jmsy.2018.07.002>
21. Sivaprasad S[^] and C MacKenzie, "The Hurwicz decision rule's relationship to decision making with the triangle and beta distributions and exponential utility", *Decision Analysis*, 15(3), 139-153 (2018). <https://doi.org/10.1287/deca.2018.0368>
22. Sadoughi M⁺, M Li⁺, C Hu, C MacKenzie, S Lee⁺, and A Eshghi, "High-dimensional reliability analysis of engineered systems involving computationally expensive black-box simulations", *Journal of Mechanical Design*, 140(7), 071401-1-071401-12 (2018).
<http://doi.org/10.1115/1.4039589>
23. Sadoughi M⁺, C Hu, C MacKenzie, A Eshghi, and S Lee⁺, "Sequential exploration-exploitation with dynamic trade-off for efficient reliability analysis of complex engineered systems", *Structural and Multidisciplinary Optimization*, 57(1), 235-250 (2018).
<http://dx.doi.org/10.1007/s00158-017-1748-7>
24. MacKenzie C and A Apte, "Modeling disruption in a fresh produce supply chain", *International Journal of Logistics Management*, 28(2), 656-679 (2017). <http://dx.doi.org/10.1108/IJLM-04-2016-0097>
25. MacKenzie C[#], H Baroud⁺, and K Barker, "Optimal resource allocation for recovery of interdependent systems: Application to the *Deepwater Horizon* oil spill", *Annals of Operations Research*, 236(1), 103-129 (2016). <http://dx.doi.org/10.1108/IJLM-04-2016-0097>
26. MacKenzie C and C Zobel, "Allocating resources to enhance resilience, with application to Superstorm Sandy and an electric utility." *Risk Analysis*, 36(4), 847-862 (2016).
<https://doi.org/10.1111/risa.12479>
27. Gallager M, C MacKenzie, D Blum, and D Boerman, "Improving risk assessment communication", *Military Operations Research Journal*, 21(1), 5-20 (2016). <http://www.jstor.org/stable/24838659>.

Prior to ISU

28. MacKenzie C, "Summarizing risk using risk measures and risk indices", *Risk Analysis*, 34(12), 2143-2162 (2014). <https://doi.org/10.1111/risa.12220>
29. MacKenzie C[#], K Barker, and J Santos, "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 (2014). <http://dx.doi.org/10.1080/0740817X.2013.876241>
30. MacKenzie C, T Trafalis, and K Barker, "Non-Gaussian Bayesian kernel methods for binary and online learning problems", *Statistical Analysis and Data Mining*, 7(6), 434-449 (2014).
<https://doi.org/10.1002/sam.11241>
31. Maalouf M, C MacKenzie, S Radakrishnan, and M Court, "A new fuzzy logic approach to capacitated dynamic dial-a-ride problem", *Fuzzy Sets and Systems*, 255, 30-40 (2014).
<http://dx.doi.org/10.1016/j.fss.2014.03.010>

32. MacKenzie C and K Barker, “Empirical data and regression analysis for estimation of infrastructure resilience, with application to electric power outages”, *Journal of Infrastructure Systems*, 19(1), 25-35 (2013). [http://dx.doi.org/10.1061/\(ASCE\)IS.1943-555X.0000103](http://dx.doi.org/10.1061/(ASCE)IS.1943-555X.0000103)
33. Winterstein S and C MacKenzie, “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 (2013). <http://dx.doi.org/10.1115/1.4007050>
34. MacKenzie C[#], K Barker, and F Grant, “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*, Vol 42(2), 359-370 (2012). <http://dx.doi.org/10.1109/TSMCA.2011.2164065>
35. MacKenzie C[#], J Santos, and K Barker, “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 (2012). <http://dx.doi.org/10.1016/j.ijpe.2012.03.032>
36. MacKenzie C, “Building democracy in Pakistan”, *Journal of Public and International Affairs*, 13, 104-122 (2002).

2. Articles in Peer-Reviewed Journals – In Review

At ISU

1. Akbari P[^], M Gabriel[^], and C MacKenzie, “Retrieving and disseminating information about disasters through natural language processing tools”, submitted to *PLOS One*.
2. Lei X[^], C MacKenzie, and Q Li, “Modeling and forecasting mass shootings using Poisson regression and change-point models”, submitted to *International Journal of Forecasting*
3. Nur G⁺, K Min, and C MacKenzie, “Valuation of a sequential compound option considering generation and transmission expansions”, submitted to *International Journal of Industrial Engineering and Operations Management*
4. Sherwin M, H Medal, and C MacKenzie, “An empirical evaluation of supplier performance and prediction in the nuclear industry”, submitted to *Cogent Business & Management*
5. Suresh R[^], Akbari P[^], and C MacKenzie, “A value-focused thinking approach to measuring and assessing community resilience”, submitted to *Risk Analysis*

3. Peer-Reviewed Conference Proceedings, Bulletins, or Reports – In Print/Accepted

At ISU

1. Nur G⁺, M Sadat⁺, C MacKenzie, and K Min, “Option valuation of energy storage integration to a wind farm: A real options approach”, *Proceedings of the 2024 IISE Annual Conference and Expo* (2024). Acceptance rate ~95%
2. Akbari P[^], M Gabriel[^], and C MacKenzie, “Retrieving and disseminating information about disasters through natural language processing tools”, *Proceedings of the 2022 IISE Annual Conference and Expo* (2022). Acceptance rate ~95%
3. Lei X[^], C MacKenzie, K Min, and R Giahi, “Designing flexible electric generation portfolios in Iowa”, *Proceedings of the 2022 IISE Annual Conference and Expo* (2022). Acceptance rate ~95%

4. Oni B^{*}, K Madson, and C MacKenzie, "Comparison of asset management approaches to optimize navigable waterway infrastructure", *Proceedings of the International Conference on Construction Engineering and Project Management*, Korean Institute of Construction Engineering and Management (2022). Acceptance rate ~95%
5. Shukla C[^] and C MacKenzie, "Billion-dollar natural disasters: What does the future look like?" *Proceedings of the 2019 Industrial and Systems Engineering Conference* (2019). Acceptance rate ~95%
6. Giahi R[^], C MacKenzie, and C Hu, "A multi-stage optimization model for flexibility in engineering design", *Proceedings of the 2019 Industrial and Systems Engineering Conference* (2019). Acceptance rate ~95%
7. Mittal A⁺, C MacKenzie, C Krejci, and T Elkins⁺, "Modeling uncertainty in rooftop PV investment return", *Proceedings of the 2018 Industrial and Systems Engineering Conference* (2018). Acceptance rate ~95%
8. Weflen E⁺, K Korniejczuk⁺, S Lau⁺, S Kryk⁺, C MacKenzie, and I Rivero, "Application of Bayesian belief network for agile kanban backlog estimation", *Proceedings of the 2018 Industrial and Systems Engineering Conference* (2018). Acceptance rate ~95%
9. Li Z⁺, C Krejci, C MacKenzie, J Jackman, G Hu, C Hu, A Graunke, and G Burnett, "Capacity planning and production scheduling for aircraft painting operations", *Proceedings of the 2017 Industrial and Systems Engineering Conference* (2017). Acceptance rate ~95%
10. Sadoughi M⁺, M Li⁺, C Hu, and C MacKenzie, "High-dimensional reliability analysis of engineered systems involving computationally expensive black-box simulation", ASME, IDETC/CIE (2017). Acceptance rate unknown
11. Sadoughi M⁺, C Hu, C MacKenzie, and S Lee, "A maximum expected utility method for reliability analysis of complex engineered systems", AIAA Aviation Forum (2017). Acceptance rate unknown
12. Zhang M[^], C MacKenzie, C Krejci, J Jackman, G Hu, C Hu, G Burnett, and A Graunke, "Probabilistic methods for long-term demand forecasting for aviation production planning", *Proceedings of the 2017 Industrial and Systems Engineering Conference* (2017). Acceptance rate ~95%.
13. Du Y⁺, M Dorneich, B Steward, and C MacKenzie, "A Bayesian-influence model for error probability analysis of combine operations in harvesting", *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* (2016). Acceptance rate ~70%.

Prior to ISU

14. MacKenzie C and E Regnier, "A hurricane decision simulator for the U.S. Marine Corps Reserve Forces in New Orleans", *Proceedings of the Western Decision Sciences Institute Annual Meeting* (2015). Acceptance rate ~100%.
15. MacKenzie C, "Optimal resource allocation for preparedness and recovery of interdependent systems", *Proceedings of the Western Economics Association International Annual Conference* (2013). Acceptance rate ~100%.
16. Baroud H⁺, K. Barker, R. Lurvey⁺, and C MacKenzie, "Bayesian Kernel Models for Disruptive Event Data", *Proceedings of the 2013 Industrial and Systems Engineering Research Conference* (2013). Acceptance rate ~95%.

17. MacKenzie C[#], H Baroud⁺, and K Barker, “Optimal resource allocation for recovery of interdependent systems: Case study of the *Deepwater Horizon* oil spill”, *Proceedings of the 2012 Industrial and Systems Engineering Research Conference* (2012). Acceptance rate ~95%.
18. Maalouf M, C MacKenzie, S Radakrishnan, and M Court, “A new fuzzy logic approach to dynamic dial-a-ride problem”, *Proceedings of the 2012 Industrial and Systems Engineering Research Conference* (2012). Acceptance rate ~95%.
19. MacKenzie C and S Winterstein, “Comparing L-moments and conventional moments to model current speeds in the North Sea” *Proceedings of the 2011 Industrial Engineering Research Conference* (2011). Acceptance rate ~95%.
20. Winterstein S and C MacKenzie, “Extremes of nonlinear vibration: Models based on moments, L-moments, and maximum entropy”, in *Proceedings of the 30th International Conference on Ocean, Offshore and Arctic Engineering*. OMAE 2011, June, Rotterdam, Netherlands (2011). Acceptance rate unknown

4. Books and Book Chapters

At ISU

1. MacKenzie C, “Influence diagrams for risk management in military and defense”, in N Scala and J Howard, eds., *Handbook of Military and Defense Operations Research*, 2nd ed., CRC Press (forthcoming 2024)
2. Min K, C MacKenzie, and S Ryan, “Life cycle costing with application to electric energy costing”, in B Bidanda, ed., *Maynard’s Industrial & Systems Engineering Handbook*, 6th ed., McGraw Hill, 3.251-3.260 (2023)
3. MacKenzie C and A Al Kazimi[^], “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 Brigantic, and A Waterworth, eds., *Applied Risk Analysis for Guiding Homeland Security Policy and Decisions*, Wiley, 284-299 (2021)
4. Sonar A⁺ and C MacKenzie, “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 (2017)
5. Vinayak A[^] and C MacKenzie, “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 (2017)

Prior to ISU

6. Everly R[^], D Limmer[^], and C MacKenzie, “Cost-effectiveness analysis of autonomous aerial platforms and communication payloads”, in F Melese, A Richter, and B Solomon, eds., *Military Cost-Benefit Analysis: Theory and Practice*, New York: Routledge, 401-423 (2015)
7. Wall K and C MacKenzie, “Multiple objective decision making”, In F Melese, A Richter, and B Solomon, eds., *Military Cost-Benefit Analysis: Theory and Practice*, New York: Routledge, 197-236 (2015)

5. Formally Invited Seminars and Presentations

At ISU

1. MacKenzie C, G Nur⁺, and M Gabriel[^], “Modeling and assessing capability-based planning for emergency preparedness”, U.S. National Security Risk Analysis Community of Practice, Military Operations Research Society (MORS) (virtual), Aug. 21 (2023).
2. MacKenzie C and G Nur⁺, “Engineering economics applied to electricity generation decisions with uncertainty”, Iowa Association of Municipal Utilities Energy Conference, Feb. 21 (2022)
3. MacKenzie C, “Disaster resilience: Models to improve decision making for disaster preparedness and response”, Seminar for Tribhuvan University, Nepal (virtual), Feb. 9 (2022)
4. MacKenzie C and E Regnier, “The Hurricane Decision Simulator: A tool for Marine Forces in New Orleans to Practice Hurricane Preparedness”, U.S. National Security Risk Analysis Community of Practice, MORS (virtual), Sep. 20 (2018)
5. MacKenzie C, “Enhancing decision making to prevent, prepare for, respond to, and recover from disruptions”, Seminar at University of Texas at Austin, Apr. 7 (2017)
6. MacKenzie C, “Lunch and learn with General Mills”, General Mills (Golden Valley, MN), Jul. 20 (2017)
7. MacKenzie C, “Enhancing decision making through narrative and simulation”, Seminar at Argonne National Laboratory, Oct. 7 (2016)

Prior to ISU

8. MacKenzie C and C Zobel, “Optimization model to increase resilience, with application to the electric power network”, SafeLife-X Final Conference (Brussels, Belgium), Jun. 24-25 (2015)
9. MacKenzie C, “Resource allocation models to prepare for and recover from a disruption and to enhance resilience”, Seminar at Rensselaer Polytechnic Institute, Dec. 3 (2014)
10. MacKenzie C, “Interdependent impacts of disruptions and benefits of disruption management strategies: Risk-based applications to natural disasters and oil spills”, Seminar at ISU, Nov. 13 (2014)
11. MacKenzie C, “Modeling economic impacts of global disruptions”, Seminar at Naval Postgraduate School, Feb. 9 (2012)
12. MacKenzie C, “Modeling economic impacts of global disruptions”, Seminar at RAND, Feb., (2012)
13. MacKenzie C, “Modeling economic impacts of global disruptions”, Seminar at Kettering University, Feb. (2012)
14. MacKenzie C, A Lantsberg, and L Salmon, “Risks of a dirty bomb in the U.S.”, National Security Seminar, Carnegie Mellon University, Aug. (2007)

Presentations given at ISU (e.g., to student groups, graduate student seminar)

15. MacKenzie C, “Simulation for process improvement and decision making”, Presentation to Research Experience for Undergraduates at ISU, Jun. 21 (2022)
16. MacKenzie C, “Quantifying the risk of mass shootings in the United States”, Seminar at ISU, Mar. 23 (2022)
17. MacKenzie C, “Operations research helping in the fight against COVID-19”, Presentation to the ISU student chapter of IISE, Feb. 10 (2021)

18. MacKenzie C, "Disaster resilience: Models to improve decision making for disaster preparedness and response", Seminar at ISU, Nov. 13 (2019)
19. MacKenzie C, "Mitigating risk of disruptive events: Application to supply chains and allocating resources for preparedness", Seminar at ISU, Oct. 4 (2017)
20. MacKenzie C, "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 ISU student chapter of IISE, Mar. 7 (2016)
21. MacKenzie C, "How I learned to stop worrying and love disruptions", Seminar at ISU, Nov. 11 (2015)

6. Contributed Presentations

At ISU

1. MacKenzie C, G Nur⁺, A Sadat⁺, and K Min, "Option valuation of energy storage integration to a wind farm: A real options approach", IISE Annual Conference & Expo (2024)
2. MacKenzie C, M Gabriel[^], and G Nur⁺, "Modeling and assessing capability-based planning for emergency preparedness", IISE Annual Conference & Expo (2024) and SRA Annual Meeting (2023)
3. MacKenzie, C, "Developing an undergraduate program in Navy engineering analytics, INFORMS Annual Meeting and MORS Annual Symposium (2023)
4. Peters C[^] and C MacKenzie, "Assessing goals and objectives for emergency preparedness", SRA Annual Meeting (2022)
5. Akbari P[^], M Gabriel[^], and C MacKenzie, "Retrieving and disseminating information about disasters through NLP tools", SRA Annual Meeting and IISE Annual Conference & Expo (2022)
6. Gabriel M[^] and C MacKenzie, "Assessing interdependencies among capabilities for emergency preparedness", SRA Annual Meeting (2022)
7. Lei X[^], C MacKenzie, K Min, and R Giahi, "Designing flexible electric generation portfolios in Iowa", IISE Annual Conference & Expo (2022)
8. MacKenzie C, G Nur⁺, J Ghodke⁺, and K Min, "Optimal valuation of project options in electric power generation and transmission", IISE Annual Conference & Expo (2022)
9. Akbari P[^], M Gabriel[^], and C MacKenzie, "Retrieving and disseminating information about disasters through NLP tools", IISE Annual Conference & Expo (2022)
10. MacKenzie C, Z Zhao⁺, and S Knight⁺, "Analytical decision making with a digital twin", Simio Sync (2022)
11. Ghodke J⁺, G Nur⁺, K Min, and C MacKenzie, "Valuation of an option to expand generation and transmission capacities under demand uncertainty", INFORMS Annual Meeting (2021)
12. Nur G⁺, C MacKenzie, K Min, and X Lei, "Evaluating the option value of adding a generator under demand uncertainty: A real options approach", Poster platform, Iowa Energy Summit (2021)
13. Ghodke J⁺, K Min, and C MacKenzie, "The engineering economic valuation of option to expand transmission network", Poster platform, Iowa Energy Summit (2021)

14. Ghodke J⁺, G Nur⁺, C MacKenzie, and K Min, “Electric power planning for a transmission network under demand volatility”, IISE Annual Conference & Expo (2021)
15. Hu G, C MacKenzie, V Aziz⁺, S Thangavel⁺, D Haim⁺, T Hasley⁺, A Melcher⁺, M Statton⁺, R Kornicki, and S Leahy, “Abnormality detection in manufacturing processes with data analytics”, Industry Advisory Board Meeting, Center for e-design (2021)
16. Lei X[^], C MacKenzie, K Min, and R Giahi. 2021. “Designing flexible electric generation portfolios with reinforcement learning”, IISE Annual Conference & Expo (2021)
17. MacKenzie C and C Shukla[^], “Billion-dollar natural disasters: What does the future look like?” INFORMS Annual Meeting (2021)
18. Nichols G and C MacKenzie, “Decision analysis of cover cropping in Iowa”, American Society of Agronomy Annual Meeting (2021)
19. Paudyal K[^] and C MacKenzie, “Incorporating supply chain design into the engineering design phase”, Systems and Information Engineering Design Symposium (2021)
20. MacKenzie C and C Shukla[^], “Billion-dollar natural disasters: What does the future look like?” SRA Annual Meeting (2020)
21. Lei X[^] and C MacKenzie, “Analysis and forecasting of mass shootings using change point detection”, IISE Annual Conference & Expo (2020)
22. Shukla C[^] and C MacKenzie, . 2020. “Billion-dollar natural disasters: What does the future look like?” IISE Annual Conference & Expo (2020)
23. Lei X[^] and C MacKenzie, 2019. “Analysis and forecasting of mass shootings using change point detection”, SRA Annual Meeting (2019)
24. MacKenzie C and B Landowski[^], “A multiple decision-maker approach to allocating resources for disruptive events”, SRA Annual Meeting (2019)
25. MacKenzie C and A Stewart[^], “Active shooter situations: An agent-based model of civilian response strategy”, SRA Annual Meeting (2019)
26. Giahi R[^], C MacKenzie, and C Hu, “A multi-stage optimization model for flexibility in engineering design”, INFORMS Annual Meeting (2019)
27. MacKenzie C and R Giahi[^], “Enhancing resilience of complex infrastructure components”, INFORMS Annual Meeting (2019)
28. MacKenzie C and X Lei[^], “Analysis and forecasting of mass shootings using change point detection”, INFORMS Annual Meeting (2019)
29. Regnier E and C MacKenzie, “Risk judgments in hurricane preparation decisions”, 30th European Conference on Operational Research (2019)
30. Giahi R[^], C MacKenzie, and C Hu, “A multi-stage optimization model for flexibility in engineering design”, IISE Annual Conference & Expo (2019)
31. Lei X[^], C MacKenzie, and Q Li, “Analysis and forecasting of mass shootings using change point detection”, IISE Annual Conference & Expo (2019)
32. MacKenzie C, A Mittal⁺, K. Flynn⁺, and C Krejci, “Online decision support tool for residential rooftop photovoltaic adoption”, IISE Annual Conference & Expo (2019)

33. MacKenzie C, Z Amenda⁺, and R. Suresh[^], “Capabilities-based planning for emergency preparedness”, SRA Annual Meeting (2018)
34. Suresh R[^] and C MacKenzie, “A value-focused thinking approach to assessing community resilience”, SRA Annual Meeting (2018)
35. MacKenzie C, Z Amenda⁺, and R. Suresh[^], “Capabilities-based planning for emergency preparedness”, INFORMS Annual Meeting (2018)
36. Giah R[^], C MacKenzie, and C Hu, “Design optimization under long-range uncertainty”, INFORMS Annual Meeting (2018)
37. Giah R[^], C MacKenzie, and C Hu, “Design optimization under long-range uncertainty”, IISE Annual Conference & Expo (2018)
38. Giah R[^], C 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 (2018)
39. Lei X[^] and C MacKenzie, “Supply chain risk analysis using dynamic fault tree”, IISE Annual Conference and Expo (2018)
40. Lei X[^], C MacKenzie, and C Krejci, “Common cause and special cause variation analysis using simulation with naturalist decision model”, IISE Annual Conference and Expo (2018)
41. Mittal A⁺, C MacKenzie, C Krejci, and T Elkins⁺, “Modeling uncertainty in rooftop PV investment return”, IISE Annual Conference and Expo (2018)
42. Rane V[^] and C MacKenzie, “Online testing as a gauge for student performance in a large engineering class”, IISE Annual Conference and Expo (2018)
43. Weflen E⁺, K Korniejczuk⁺, S Lau⁺, S. Kryk⁺, C MacKenzie, and I Rivero, “Application of Bayesian belief network for agile kanban backlog estimation”, IISE Annual Conference and Expo (2018)
44. MacKenzie C, “Metrics for resilience: What are we really measuring?” SRA Annual Meeting (2017)
45. MacKenzie, C, X Bai⁺, and A Fristo⁺, “Simulating severe supply chain disruptions with multiple suppliers and firms”, INFORMS Annual Meeting (2017)
46. MacKenzie C, E Regnier, S Hetherington⁺, A Prisacari⁺, and S Sivaprasad⁺, “Evaluating the Hurricane Decision Simulator,” INFORMS Annual Meeting (2017)
47. MacKenzie, C and C Zobel, “Enhancing resilience of the electric power sector after Hurricane Sandy”, INFORMS Annual Meeting (2017).
48. MacKenzie C and S Sivaprasad[^], “Comparing decisions with intervals and probability distributions”, Advances in Decision Analysis (2017).
49. Regnier E and C MacKenzie, “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 (2017).
50. Li X⁺, M Zhang[^], C Krejci, C MacKenzie, J Jackman, G Hu, C Hu, G Burnett, and A Graunke, “Capacity planning and production scheduling for aircraft painting operations”, IISE Annual Conference and Expo (2017)
51. MacKenzie C, A Fristo[^], and X Bai[^], “Simulating severe supply chain disruptions with multiple suppliers and firms”, Production Operations Management Society Annual Conference (2017)

52. MacKenzie C and S Chatterjee, "Hypergraphs for representing cyber-physical system complexities and dependencies", INFORMS Computing Society Meeting (2017)
53. MacKenzie C, K Bryden, A Prisacari+, and D Bell+, "Integrating narrative into engineering decision making", Resilience Week (2016)
54. MacKenzie C, and E Regnier, "The online Hurricane Decision Simulator", Institute of Industrial Engineers Annual Conference and Expo (2016)
55. MacKenzie C and A Apte, "Modeling disruption in a fresh produce supply chain. Production Operations Management Society Annual Conference (2016)
56. MacKenzie C, "How much should we spend on preparing for disruptions?" SRA Annual Meeting (2015)
57. MacKenzie, C "How much should we spend on preparing for disruptions?" INFORMS Annual Meeting (2015)
58. MacKenzie C and C Zobel, "Allocating resources to enhance resilience, with application to Superstorm Sandy", INFORMS Annual Meeting (2015)

Prior to ISU

59. Regnier E and C MacKenzie, "A Hurricane Decision Simulator for the U.S. Marine Corps Reserve Forces in New Orleans", Western Decision Sciences Institute Annual Meeting (2015)
60. MacKenzie C and C Zobel, "Allocating resources to enhance resilience", SRA Annual Meeting (2014)
61. MacKenzie C and A Apte, "Model of supply chain vulnerability for fresh produce", INFORMS Annual Meeting (2014)
62. MacKenzie C, "Allocating resources to enhance resilience", Institute of Industrial Engineers Annual Conference and Expo (2014)
63. MacKenzie C, "Deploying simulation to compare among different risk reduction strategies for supply chains", SRA Annual Meeting (2013)
64. MacKenzie C, "Deploying simulation to compare among different risk reduction strategies for supply chains", INFORMS Annual Meeting (2013)
65. MacKenzie C, "Trading off between resource allocation to prepare for and recover from disruptions", INFORMS Annual Meeting (2013)
66. MacKenzie, C, "Optimal resource allocation for preparedness and recovery of interdependent systems", Western Economic Association International Annual Conference (2013)
67. MacKenzie C, K Barker, and J Santos, "A simulation of severe international supply chain disruptions". Poster platform session, SRA Annual Meeting (2012)
68. MacKenzie, C and K Barker, "Disruption management during supply chain disruptions", INFORMS Annual Meeting (2012)
69. MacKenzie C and K Barker, "Optimal resource allocation for preparedness and recovery of interdependent systems", INFORMS Annual Meeting (2012)
70. MacKenzie C, H Baroud, and K Barker, "Optimal resource allocation for recovery of interdependent systems", Institute of Industrial Engineers Annual Conference and Expo (2012)

71. MacKenzie, C, K Barker, and J Santos, "A simulation of severe international supply chain disruptions", Institute of Industrial Engineers Annual Conference and Expo (2012)
72. MacKenzie C and K Barker, "Optimal resource allocation for recovery from multimodal transportation disruptions", SRA Annual Meeting (2011)
73. MacKenzie C and K Barker, "Quantifying the interdependent effects of supply chain disruptions and industry preparedness mitigation strategies", INFORMS Annual Meeting (2011)
74. MacKenzie C and K Barker, "International economic impacts of supply chain disruptions", INFORMS Annual Meeting (2011)
75. MacKenzie, C and K Barker, "Optimal resource allocation for recovery of interdependent systems", INFORMS Annual Meeting (2011)
76. MacKenzie C and K Barker, "Conceptualizing the broader impacts of industry preparedness strategies with a risk-based input-output model", International Input-Output Conference (2011)
77. MacKenzie C and K Barker, "Modeling interdependent impacts of industry preparedness strategies", Institute of Industrial Engineers Annual Conference and Expo (2011).
78. MacKenzie C and K Barker, "Integrating simulation with risk-based interdependency modeling to evaluate the consequences of an inland waterway port closure", SRA Annual Meeting (2010).
79. MacKenzie C and T Trafalis, "Bayesian kernel models for non-Gaussian processes", INFORMS Annual Meeting (2010).
80. MacKenzie C, K Barker, and T Landers, "Effect of alternative shipping strategies after an inland port closure", Institute of Industrial Engineers Annual Meeting and Expo (2010)
81. MacKenzie C, "Applying flexibility and robustness to emergency preparedness", Technology Management Program (2009)
82. MacKenzie C, "Constructing a risk index", SRA Annual Meeting (2008)
83. MacKenzie C and H Willis, "All along the watchtower: Using risk analysis to evaluate potential solutions to border surveillance", Risk Symposium, Los Alamos National Laboratory (2008)

7. Other Scholarly Contributions

At ISU

1. C MacKenzie, "A flexible design framework for renewable energy systems", *IISE Magazine* (Research Highlights), May (2022)
2. C MacKenzie, "Engineering good business decisions", *IISE Magazine*, May (2021)
3. Paudyal K[^] and C MacKenzie, "Incorporating supply chain design into the engineering design phase", *Proceedings of the 2021 Systems and Information Engineering Design Symposium* (2021).
4. MacKenzie C and B Morris[^], "Managing Water Quality", Case study hosted by Case Centre (2019)

5. Al Kazimi A[^] and C MacKenzie, "The economic costs of natural disasters, terrorist attacks, and other calamities: An analysis of economic models that quantifies the losses caused by disruptions", *Proceedings of the 2016 Systems and Information Engineering Design Symposium* (2016)

Prior to ISU

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

B. Patents, Disclosures, and Technology Transfer

None

C. Funded Grants and Contracts

Funded external grants at ISU

1. Investigators: Cristina Poleacovschi (ISU), Cameron MacKenzie (ISU), Kate Padgett Walsh (ISU), Mollie Applegate (ISU), Sri Sritharan (ISU), Lu Liu (ISU), Katy Swalwell (Equity Literacy Institute)
Title of grant: Social Justice Training in Graduate Engineering Education through Critical Civic Engagement
Funding agency: National Science Foundation
Dates: 1/15/24-1/14/27
Dollar amount: \$499,999 (\$50,000)
Role on project: co-PI
2. Investigators: Courtney Long (ISU), Cameron Maackenzie (ISU), Lisa Bates (ISU), Christa Hartsook (ISU), Duane Johnson (ISU), Dan Nieland (ISU)
Title of grant: Iowa Specialty Crop Block Grant Program: Understanding Capacity and Feasibility of a Fruit and Vegetable Processing Facility in Iowa
Funding agency: Iowa Department of Agriculture & Land Stewardship
Dates: 9/30/22-9/29/24
Dollar amount: \$45,608 (\$20,534)
Role on project: co-PI
3. Investigators: Cameron MacKenzie (ISU), Michael Helwig (ISU), Brendan Devine (ISU), Michael Dorneich (ISU), Qing Li (ISU), Sarah Ryan (ISU)
Title of grant: Navy Engineering Analytics Program
Funding agency: Office of Naval Research
Dates: 3/1/22-2/28/25
Dollar amount: \$521,593 (\$140,830)
Role on project: PI
4. Investigators: Eliot Winer (ISU), Cameron MacKenzie (ISU), Beiwen Li (ISU), Michael Dorneich (ISU)
Title of grant: Development of a Model-Based Digital Twin Design with Virtual Reality and Simulation
Funding agency: The Boeing Corporation
Dates: 1/1/22-12/31/22
Dollar amount: \$344,873 (\$86,218)

Role on project: co-PI

5. Investigator: Cameron MacKenzie (ISU)
Title of grant: Emerging Threats – Analyze Threat, Vulnerability, and Risk
Funding agency: Iowa Department of Homeland Security and Emergency Management
Dates: 9/1/21-6/30/23
Dollar amount: \$50,000 (\$50,000)
Role on project: PI
6. Investigator: Cameron MacKenzie (ISU)
Title of grant: Emerging Threats – Network Capabilities
Funding agency: Iowa Department of Homeland Security and Emergency Management
Dates: 9/1/21-6/30/23
Dollar amount: \$50,000 (\$50,000)
Role on project: PI
7. Investigators: Eliot Winer (ISU), Cameron MacKenzie (ISU), Stephen Gilbert (ISU), Beiwen Li (ISU)
Title of grant: Development of a Model-Based Digital Twin Design and Production System to Examine Scenario-Based Trade-Off Decisions
Funding agency: The Boeing Corporation
Dates: 8/15/21-12/31/21
Dollar amount: \$212,569 (\$53,142)
Role on project: co-PI
8. Investigators: Jason Grimm (Iowa Valley Resource Conservation & Development), Cameron MacKenzie (ISU), Anuj Mittal (Dunwoody College), Sarah Swan Ray (University of Minnesota)
Title of grant: Full Trucks for Higher Profits: Transportation Collaboration among Farmers and Food Hubs in the Midwest
Funding agency: North Central Sustainability Agriculture Research & Education
Dates: 4/1/20-8/31/22
Dollar amount: \$39,930 (\$8,000)
Role on project: co-PI
9. Investigators: K. Jo Min (ISU), Cameron MacKenzie (ISU)
Title of grant: Economic Analysis of Distributed Solar and Wind Power
Funding agency: Iowa Energy Center
Dates: 4/1/20-3/31/23
Dollar amount: \$243,036 (\$121,518)
Role on project: co-PI
10. Investigators: Guiping Hu (ISU), Cameron MacKenzie (ISU)
Title of grant: Abnormality Detection in Manufacturing Process with Data Analytics
Funding agency: Danfoss through Center for e-design
Dates: 7/1/19-12/31/22
Dollar amount: \$15,000 (\$7,500)
Role on project: co-PI
11. Investigators: Sri Sritharan (ISU), Cameron MacKenzie (ISU), Johanna Amaya-Leal (ISU), An Chen (ISU), Sara Hamideh (ISU), Cristina Poleacovschi (ISU)
Title of grant: Planning Grant: Engineering Research Center or Hazard Mitigation and Community Resilience (HMCR)

- Funding agency: National Science Foundation
Dates: 9/1/19-8/31/22
Dollar amount: \$100,000 (\$17,000)
Role on project: co-PI
12. Investigators: Cameron MacKenzie (ISU), John Jackman (ISU)
Title of grant: ISU Partnership with Boeing in Industrial Engineering
Funding agency: The Boeing Company
Dates: 9/10/19-7/31/20
Dollar amount: \$56,868 (\$42,651)
Role on project: PI
 13. Investigator: Cameron MacKenzie (ISU))
Title of grant: Research on Dr. Deming's Common Cause and Special Cause
Funding agency: Mr. Dick Steele
Dates: 5/15/18 – 8/15/18
Dollar amount: \$10,500 (\$10,500)
Role on project: PI
 14. Investigators: Cameron MacKenzie (ISU), Chao Hu (ISU)
Title of grant: Design Optimization under Long-Range Uncertainty
Funding agency: Center for e-design
Dates: 6/1/17-5/31/18
Dollar amount: \$30,000 (\$15,000)
Role on project: PI
 15. Investigator: Frank Peters (ISU), Cameron MacKenzie (ISU), John Jackman (ISU), Matt Frank (ISU)
Title of grant: Digital Innovative Design
Funding agency: Steel Founders Society of America from Defense Logistics Agency
Dates: 10/1/17-6/30/22
Dollar amount: \$2,000,000 (\$440,000)
Role on project: co-PI
 16. Investigator: Cameron MacKenzie (ISU)
Title of grant: Development of Hurricane Decision Simulator
Funding agency: Naval Postgraduate School through Ames Lab
Dates: 3/1/18-9/30/18
Dollar amount: \$35,000 (\$35,000)
Role on project: PI
 17. Investigator: Cameron MacKenzie (ISU)
Title of grant: Measuring the Effectiveness of the Hurricane Decision Simulator
Funding agency: Naval Postgraduate School through Ames Lab
Dates: 10/1/16-6/30/17
Dollar amount: \$20,000 (\$20,000)
Role on project: PI
 18. Investigators: Caroline Krejci (ISU), Cameron MacKenzie (ISU), John Jackman (ISU), Guiping Hu (ISU)
Title of grant: Airplane Planning Capacity and Planning Tool for Boeing Analytics Scholars
Funding agency: The Boeing Company

Dates: 9/30/15-10/17/16
Dollar amount: \$79,408 (\$19,852)
Role on project: co-PI

Internal ISU funding

19. Investigator: Cameron MacKenzie (ISU)
Title of grant: Simulating a Border Crossing with Human Behavior, Adversarial Risk Analysis, and Multi-Criteria Decision Making
Funding agency: ISU IMSE Exploratory Research Program
Dates: 5/15/24-8/15/24
Dollar amount: \$18,800 (\$18,800)
Role on project: PI
20. Investigator: Cameron MacKenzie (ISU)
Title of grant: Analytical Decision Making with a Digital Twin Simulation
Funding agency: ISU IMSE Exploratory Research Program
Dates: 8/15/23-12/31/23
Dollar amount: \$8,250 (\$8,250)
Role on project: PI
21. Investigator: Cameron MacKenzie (ISU)
Title of grant: Decision Support for Allocating Resources to Mitigate the Risk of Disruptive Events
Funding agency: ISU IMSE Exploratory Research Program
Dates: 8/15/23-12/31/23
Dollar amount: \$8,250 (\$8,250)
Role on project: PI
22. Investigator: Cameron MacKenzie (ISU)
Title of grant: Retrieving and Disseminating Information about Disasters through Natural Language Processing Machine Learning Tools
Funding agency: ISU IMSE Exploratory Research Program
Dates: 8/15/21-12/31/21
Dollar amount: \$16,000 (\$16,000)
Role on project: PI
23. Investigators: Cameron MacKenzie (ISU), Qing Li (ISU), Danial Linhares (ISU)
Title of grant: Data Analytics Proposal: Detecting Abnormalities in the Swine Disease Reporting System
Funding agency: ISU IMSE Exploratory Research Program
Dates: 1/1/20-5/15/20
Dollar amount: \$16,000 (\$5,333)
Role on project: PI
24. Investigators: Cameron MacKenzie (ISU), Sarah Ryan (ISU)
Title of grant: IMSE ABET Assessment Grant
Funding agency: ISU IMSE
Dates: 8/15/19-12/31/19
Dollar amount: \$5,000 (\$5,000)
Role on project: PI

25. Investigator: Cameron MacKenzie (ISU)
Title of grant: Profit Models for Designing Resilient Engineered Systems
Funding agency: ISU IMSE Exploratory Research Program
Dates: 1/1/19-5/15/19
Dollar amount: \$14,847 (\$14,847)
Role on project: PI
26. Investigator: Cameron MacKenzie (ISU)
Title of grant: Measuring Capabilities for Emergency Preparedness
Funding agency: ISU IMSE Exploratory Research Program
Dates: 5/15/18-8/15/18
Dollar amount: \$7,533 (\$7,533)
Role on project: PI
27. Investigator: Cameron MacKenzie (ISU)
Title of grant: Engaging Students through Online Testing Modules for a High-Enrollment Engineering Economics Course
Funding agency: Iowa State University Center for Excellence in Learning and Teaching (Miller Faculty Fellowship)
Dates: 6/1/17-5/31/18
Dollar amount: \$15,000 (\$15,000)
Role on project: PI

Funded grants prior to joining ISU

28. Investigator: Andrew Hernandez (Naval Postgraduate School—NPS), Cameron MacKenzie (NPS), Eva Regnier (NPS)
Title of grant: Marine Forces Reserve Simulator Training Tool
Funding agency: Marine Forces Reserve
Dates: 8/1/14-12/31/15
Dollar amount: ~\$65,000 (~\$30,000)
Role on project: co-PI
29. Investigator: Cameron MacKenzie (NPS), Francois Melese (NPS)
Title of grant: Evaluating Measures of Effectiveness for Security Cooperation Programs
Funding agency: Defense Security Cooperation Agency
Dates: 10/1/13-9/30/14
Dollar amount: \$70,000 (\$50,000)
Role on project: PI
30. Investigator: Kash Barker (University of Oklahoma—OU), Theodore Trafalis (OU), Cameron MacKenzie (OU)
Title of grant: Bayesian Kernel Methods for Non-Gaussian Distributions: Binary and Multi-class Classification Systems
Funding agency: U.S. Army Research, Development and Engineering Command, Army Research Office, Mathematical Sciences Division
Dates: 4/1/12-9/30/13
Dollar amount: \$50,000 (\$0—I was a Ph.D. student when Kash received the grant)
Role on project: Senior Investigator

III. TEACHING AND STUDENT MENTORING

A. Instruction for ISU

Term (most recent first)	Course number	Course Title	Credits	Lab	Number of students	TA/graders
Spring 2024	IE 453X	Engineering Problem Solving for Defense	3	No	4	0 / 0
Spring 2024	IE 564	Decision Analysis	3	No	30	0 / 0
Winter 2024	IE 305	Engineering Economic Analysis	3	No	26	0 / 0
Fall 2023	IE 413	Stochastic Modeling, Analysis and Simulation	4	Yes	75	1 / 0
Fall 2023	IE 560	Engineering Risk Analysis	3	No	32	0 / 0
Spring 2023	IE 564	Decision Analysis	3	No	11	0 / 0
Winter 2023	IE 305	Engineering Economic Analysis	3	No	46	1 / 0
Fall 2022	IE 413	Stochastic Modeling, Analysis and Simulation	4	Yes	102	2 / 0
Fall 2022	IE 313X	Crisis Decision Making and Risk Management with Defense Applications	3	No	12	0 / 0
Spring 2022	IE 564	Decision Analysis	3	No	30	0 / 0
Fall 2021	IE 413	Stochastic Modeling, Analysis and Simulation	4	Yes	145	2 / 0
Fall 2021	IE 560	Engineering Risk Analysis	3	No	47	1 / 0
Summer 2021	IE 305	Engineering Economic Analysis	3	No	37	0 / 1
Spring 2021	IE 564	Decision Analysis	3	No	21	0 / 0
Winter 2021	IE 305	Engineering Economic Analysis	3	No	63	0 / 1
Fall 2020	IE 413	Stochastic Modeling, Analysis and Simulation	4	Yes	125	1 / 0
Summer 2020	IE 305	Engineering Economic Analysis	3	No	132	0 / 1
Spring 2020	IE 422	Design and Analysis Applications for System Improvement	3	Yes	30	1 / 0
Spring 2020	IE 564	Decision Analysis in System Design	3	No	11	0 / 0
Fall 2019	IE 413	Stochastic Modeling, Analysis and Simulation	4	Yes	127	2 / 0
Fall 2019	IE 560	Engineering Risk Analysis	3	No	40	1 / 0
Spring 2019	IE 305	Engineering Economic Analysis	3	No	175	1 / 0
Spring 2019	IE 564	Decision Analysis in System Design	3	No	20	0 / 0

Fall 2018	IE 305	Engineering Economic Analysis	3	No	234	1 / 0
Fall 2018	IE 561	Total Quality Management	3	No	59	1 / 0
Spring 2018	IE 305	Engineering Economic Analysis	3	No	177	1 / 0
Spring 2018	IE 564	Decision Analysis in System Design	3	No	26	0 / 0
Fall 2017	IE 305	Engineering Economic Analysis	3	No	243	2 / 0
Fall 2017	IE 560	Engineering Risk Analysis	3	No	84	1 / 0
Spring 2017	IE 305	Engineering Economic Analysis	3	No	163	1 / 0
Fall 2016	IE 561	Continuous Quality Improvement of Process	3	No	43	0 / 0
Spring 2016	IE 305	Engineering Economic Analysis	3	No	164	2 / 0
Fall 2015	IE 560	Engineering Risk Analysis	3	No	40	0 / 0

B. Curricular Development Activity for ISU

IE 453X – “Engineering Problem Solving for Defense”

- 2024. Developed this course as part of the Navy Engineering Analytics Program. Identified appropriate project for students in the class. Recruited Assistant Professor Todd Kingston to advise class on technical material. Helped students learn Ansys simulation. Organized trip to Naval Surface Warfare Center in Crane, Indiana so that students could present results of their project.

IE 313X – “Crisis Decision Making and Risk Management with Defense Applications”

- 2022. Designed this course as part of the Navy Engineering Analytics Program. Adapted lectures from graduate courses for this new undergraduate course. Wrote several new homework assignments on applying decision and risk analysis to defense and security problems.

IE 413 – “Stochastic Modeling, Analysis, and Simulation”

- 2019. My first time teaching this course. Revised lectures from previous instructor. Rewrote lab assignments. Assigned Simio competition problem as class project for the first time.
- 2020. Recorded lecture videos to align with hybrid teaching during Covid. Created new lab and homework assignments.
- 2021. Created some new lab and homework assignments. Added new material on creating simulations in R and making decisions based on simulations.
- 2022. Created new schedule for lectures in coordination with co-professor. Created new lab assignments based on online textbook and Simio competition problem. Created new homework assignments.
- 2023. Created new lecture on simulation optimization. Assigned Simio academic case study as course project and held internal competition.

IE 305 – “Engineering Economic Analysis”

- 2017. Designed new method to evaluate students using online testing modules. Taught Monte Carlo simulation as part of my lectures on uncertainty and risk.
- 2019. Created new online course that combined lectures of 3 different professors. Developed new lectures and recorded myself giving the lectures. Wrote 4 new case studies. Created new sets of question banks for repeatable online quizzes. Wrote new sets of multiple choice questions to assess textbook reading.
- 2020. Created new online course with only me as the lecturing professor. Designed and organized course as modules within the Canvas environment. Recorded new videos of my lectures. Modified online testing modules.
- 2021. Taught online course as part of the new Winter session. Wrote a new case study on life cycle cost assessment.
- 2023. Updated lectures on inflation to reflect recent events.

IE 560 – “Engineering Risk Analysis”

- 2015. Designed this course as a new elective as part of the graduate program for Industrial Engineering and for the distance-learning Systems Engineering and Engineering Management distance-learning programs.
- 2017. Created and implemented repeatable online homework. Taught students Monte Carlo simulation in Matlab. Wrote a new case study on influence diagrams.
- 2019. Wrote teaching material for students to use as reference. Taught students Monte Carlo simulation in Python. Wrote two new case studies. Added lectures on real-world examples of the risk analysis tools.
- 2021. Organized course in modular format on Canvas to integrate lectures, homework, and case studies in a more cohesive manner.
- 2023. Developed new homework questions on risks of a nuclear plant. Created new case study analyzing the risk of a train accident with a motor vehicle.

IE 564 – “Decision Analysis in System Design” renamed “Decision Analysis”

- 2018. My first time teaching this course. Used new textbook and wrote new assignments and case studies.
- 2019. Created three new case studies. Modified homework to align better with case studies.
- 2021. Restructured lectures to a modular format and combined PowerPoint with handwritten notes. Created a new assignment on sustainability.
- 2022. Created a new case study on making decisions about producing a vaccine.
- 2023. Taught course completely online. Recorded a complete set of lectures for online course. Created a new case study on decision analysis in agriculture based on a previous student’s term paper.
- 2024. Created a new case study incorporating socioeconomic vulnerability variables as part of NSF grant to integrate social justice training into graduate programs

IE 561 – “Continuous Quality Improvement of Process” renamed “Total Quality Management”

- 2016. This course had not been taught for several years. Redesigned the course, similar to creating a new graduate elective course.
- 2018. Complete overhaul of the course. Created modules and exercises on Deming. Identified key readings to assign and generate discussion on qualitative aspects of quality. Lectured and assigned homework on statistical quality control. Wrote and assigned new case study on Flint water crisis.

C. Supervision of Students as Major Professor

ISU – PhD students

1. Motahareh Kashanian (co-advising), PhD, August 2023-present, work in progress – degree expected December 2025
2. Moones Keshvarinia, PhD, January 2023-present, work in progress – degree expected May 2027
3. Parastoo Akbari, PhD, August 2021-present, work in progress – degree expected May 2026
4. Mark White, PhD, August 2018-present, work in progress
5. Xue Lei, PhD, May 2017-May 2022, “Analyzing the Risk of Mass Shootings”, MS, January 2016-May 2017, “Static and Dynamic Fault Tree Analysis with Application to Hybrid Vehicle Systems and Supply Chains”, now Data Scientist at VF Corporation
6. Ramin Giahi, PhD, January 2017-December 2020, “Sequential Decision Making and Simulation-Optimization for the Design of Complex Engineering Systems”, now Senior Data Scientist at Walmart Global Tech

ISU – MS students

7. Matthew Gabriel, MS, January 2022-August 2023, “Modeling and Assessing Capability-Based Planning for Emergency Preparedness”, now Industrial Engineer at Boeing
8. Curtis Peters, MS, September 2021-May 2023, “A Value-Focused Thinking Approach to Emergency Management and Community Preparedness”, now Industrial Engineer at Pella Corporation
9. Charchit Shukla, MS, August 2018-May 2021, “An Analysis of U.S. Billion-Dollar Natural Disasters”, now a doctoral student at ISU
10. Steve Paul, MS, August 2018-December 2020. “Optimizing Strategies to Mitigate Risk in a Supply Chain Disruption”, now Process Engineer at Rivian
11. Sourabh Choudhari, MS, August 2018-December 2020. “A Quality Control Case Study of Kitchen Appliance Production: An Engineering Case for Graduate Education”, now Industrial Engineer at GlobalFoundries
12. Rohit Suresh, MS, August 2017-December 2019, “A Value-Focused Thinking Approach to Measuring Community Resilience”
13. Kevin Korniejczuk, MS, August 2017-May 2019, “Simulating Severe Supply Chain Disruptions with Multiple Suppliers and Firms”, now Supply Chain Analyst at Walgreens
14. Vrishtee Rane, MS, January 2017-December 2018, “An Analysis of Using Online Testing Modules in Engineering Economics”, now Quality Engineer at Whirlpool Corporation
15. Krishnasaivarun Kotta, MS, September 2017-May 2018, “Decision Making Methods under Uncertainty”
16. Brandon Landowski, MS, September 2017-August 2018, “A Multiple Decision-Maker Approach to Allocating Resources to Prepare and Respond to Major Disruptions”, now Manufacturing Engineer at Boston Scientific
17. Lei Yao, MS, September 2016-December 2017, “A Resource Allocation Model for Deep Uncertainty (RAM-DU), with Application to the *Deepwater Horizon* Oil Spill”

18. Sarat Sivaprasad, MS, May 2016-December 2017, "What Does Decision Making with Intervals Really Assume? The Relationship between the Hurwicz Decision Rule and Prescriptive Decision Analysis"
19. Alexandria Stewart, MS, January 2016-August 2017, "Active Shooter Situations: An Agent-Based Model of Civilian Response Strategy", now Talent Development Consultant at FinishMaster
20. Aditya Pathak, MS, January 2016-August 2017, "Estimating Production Losses from Disruptions Based on Stock Market Returns: Applications to 9/11 Attacks, the *Deepwater Horizon* Oil Spill, and Hurricane Sandy", now Manager of Compliance Analytics at AB InBev
21. Arun Vinayak, MS, January 2016-May 2017, "Quantitative Models for Supply Chain Risk Analysis from a Firm's Perspective", now Senior Supply Chain Manager at Moxion Power Co
22. Minxiang Zhang, MS, January 2016-May 2017, "Demand Forecasting and Decision Making under Uncertainty for Long-Term Production in Aviation Industry", now Data Scientist at Youhualin Technology

Prior to ISU

23. Capt. Amanda Nerg, U.S. Air Force and CPT Kristie Stuckenschneider, U.S. Army, MS, June 2014 – December 2014, "Domestic Disasters and Geospatial Technology for the Defense Logistics Agency" (joint thesis)
24. Capt. Michael Tozzollo, U.S. Marines Corps, MS, August 2013 – May 2014, "Analysis of United States Foreign Military Financing to Israel: Should the United States Modify the Military Aid?"
25. LCDR Randall Everly, U.S. Navy, and LT David Limmer, MS, May 2012-May 2013, "Cost Effectiveness Analysis of Aerial Platforms and Sustainable Communication Payloads" (joint thesis)

D. Service on Graduate Student Committees

At ISU

1. Seyed Khademnia, degree expected 2026, PhD, Industrial and Manufacturing Systems Engineering, committee member
2. Shayan Tohed, degree expected 2026, PhD, Industrial and Manufacturing Systems Engineering, committee member
3. Gaurav Arwade, degree expected 2026, PhD, Industrial and Manufacturing Systems Engineering, committee member
4. Atousa Arzanipour, degree expected 2026, PhD, Industrial and Manufacturing Systems Engineering, committee member
5. G Nazia Nur, degree expected 2025, PhD, Industrial and Manufacturing Systems Engineering, committee member
6. Mohammad Sadat, degree expected 2025, PhD, Industrial and Manufacturing Systems Engineering, committee member
7. Charchit Shukla, degree expected 2025, PhD, Industrial and Manufacturing Systems Engineering, committee member

8. Mahsa Khosravi, degree expected 2024, PhD, Industrial and Manufacturing Systems Engineering, committee member
9. Hannah Ragsdale Lee, degree expected 2024, MS, Human Computer Interaction, committee member
10. Deepa Manani, degree expected 2024, MS, Management and Information Systems, committee member
11. Nassar Al Marry, degree expected 2024, PhD, Mechanical Engineering, committee member
12. Parvin Mohammadiarvejh, 2024, Industrial and Manufacturing Systems Engineering, committee member
13. Nazareen Siklandar Bahsa, 2024, PhD, Aerospace Engineering, committee member
14. Fatima Mgaedeh, 2024, PhD, Industrial and Manufacturing Systems Engineering, committee member
15. Yiqun Jiang, 2024, PhD, Industrial and Manufacturing Systems Engineering, committee member
16. Bukola Oni, 2023, PhD, Civil, Construction and Environmental Engineering, committee member
17. Robert Philpott, 2023, PhD, Aerospace Engineering, committee member.
18. Kirshanthi Ganesa Moorthy, 2023, MS, Agriculture and Biosystems Engineering, committee member
19. Zhuoyi Zhao, 2023, PhD, Industrial and Manufacturing Systems Engineering, committee member
20. Shaodong Wang, 2022, PhD, Industrial and Manufacturing Systems Engineering, committee member
21. Mohammad Fili, 2022, PhD, Industrial and Manufacturing Systems Engineering, committee member
22. Carl Kirpes, 2022, PhD, Industrial and Manufacturing Systems Engineering, committee member
23. Chih-Yuan Chu, 2022, PhD, Industrial and Manufacturing Systems Engineering, committee member
24. Gorkem Emirhuseyinoglu, 2022, PhD, Industrial and Manufacturing Systems Engineering, committee member
25. Ishan Patel, 2022, MS, Industrial and Manufacturing Systems Engineering, committee member
26. Luke Gordon, 2022, MS, Aerospace Engineering, committee member
27. Xiaoshi Guo, 2021, PhD, Industrial and Manufacturing Systems Engineering, committee member
28. Mohsen Shahhosseini, 2021, PhD, Industrial and Manufacturing Systems Engineering, committee member

29. Vahid Azizi, 2021, PhD, Industrial and Manufacturing Systems Engineering, committee member
30. Jessic Talbot, 2021, PhD, Civil, Construction and Environmental Engineering, committee member
31. Cody Newlun, 2021, PhD, Electrical and Computer Engineering, committee member
32. Ali Baghersaghchi Khorasani, 2020, PhD, Industrial and Manufacturing Systems Engineering, committee member
33. Ramanathan Annamalai, 2020, MS, Industrial and Manufacturing Systems Engineering, committee member
34. Steven Kryk, 2020, MS, Industrial and Manufacturing Systems Engineering, committee member
35. Wonseok Kim, 2020, MS, Industrial and Manufacturing Systems Engineering, committee member
36. Anuj Mittal, 2019, PhD, Industrial and Manufacturing Systems Engineering, committee member
37. Dan Hu, 2019, PhD, Industrial and Manufacturing Systems Engineering, committee member
38. Shiyang Huang, 2018, PhD, Industrial and Manufacturing Systems Engineering, committee member
39. Mohammad Sadoughi, 2019, PhD, Mechanical Engineering, committee member
40. Yazan Abukhalil, 2019, MS, Civil, Construction and Environmental Engineering, committee member
41. Quin Schultz, 2019, MS, Agriculture and Biosystems Engineering, committee member
42. Xian Guo, 2017, PhD, Electrical and Computer Engineering, committee member (she earned a minor in IMSE and I was the IMSE representative)
43. Haoran Sun, 2017, MS, Industrial and Manufacturing Systems Engineering, committee member
44. Michelle Voelker, 2016, MS, Industrial and Manufacturing Systems Engineering, committee member
45. Michael Sherwin, 2018, PhD, Industrial and Systems Engineering at Mississippi State University, committee member

E. Supervision of Post-Doctoral Students and Professional Staff

None

F. Supervision of Independent Study and Undergraduate Research

ISU - Independent Study

1. Mark White, January 2020-May 2020, "IE 690: Advanced Topics in Risk and Decision Analysis"

ISU - Undergraduate Research

1. Dedley Nelson, August 2023-May 2024, "Electricity Power Planning for Iowa"

2. Ritvik Karthik, August 2023-May 2024, "How Much do ChatBots Know About Disasters?"
3. Sean O'Shea, September 2023-May 2024, "Machine Maintenance and Digital Twin" (Boeing Undergraduate Research Excellence in Engineering)
4. Wilson Diep and Ule Mewanu, June 2023-August 2023, "Testing ChatGPT as a Source of Information for Natural Disasters" (Academic Program for EXcellence for Engineers APEX-E)
5. Carleigh Mach, August 2022-April 2023, "Excel Tool for Valuing Energy Sources" (Raj and Diana Nathan Undergraduate Research Fellow)
6. Andrew Thompson, August 2022-December 2022, "Leasing Land for a Wind Turbine: A Model for a Farmer's Decision"
7. Charisse Lee, June 2022-August 2022, "Excel Tool for Valuing Energy Sources" (APEX-E)
8. Allison Hubbell, January 2022-May 2022, "Assessing the Economic Consequences of the 2020 August Derecho in Iowa" (freshman honors project)
9. Kegan Wall, January 2022-May 2022, "Emerging Threats in Iowa"; January 2021-May 2021, "Sharing Transportation Costs among Farmers"
10. Matthew Gabriel, August 2021-December 2021, "Information Discovery about the Iowa Derecho from the News Media"
11. Riley Hogan, August 2021-December 2021, "Simulation of Manufacturing Systems" (Boeing Undergraduate Research Excellence in Engineering)
12. Kundan Paudyal, August 2020-May 2021, "Engineering System Design with Long Range Planning" (Boeing Undergraduate Research Excellence in Engineering)
13. Curtis Peters and Kennedy Brown, January 2019-May 2019, "Simulating Capabilities for Emergency Preparedness" (joint freshman honors project)
14. Kevin Flynn, August 2018-December 2018, "Online Decision Support Tool for Solar Rooftop Adoption"
15. Brannon Morris, September 2018-May 2019, "Designing and Writing Case Studies for Course in Quality"
16. Xue Bai, September 2016-December 2016, September 2017-December 2017, "Simulating a Severe Supply Chain Disruption"
17. Sophia Hetherington, January 2017-May 2017, "Evaluating the Effectiveness of the Hurricane Decision Simulator"
18. Andre Fristo, May 2016-December 2016, "Simulating a Severe Supply Chain Disruption"
19. Amro Al Kazimi, September 2015-December 2016, "The Economic Costs of Natural Disasters, Terrorist Attacks, and Other Calamities"

G. Non-ISU Instruction (e.g. Short Courses, Workshops, Training)

At ISU

1. Masterclass in Risk Analysis, John Deere, Urbandale, Iowa, March 8, 2024
2. Workshop for DataFEWSion on multi-objective decision making
 - September 30, 2020, ISU

- September 26, 2022, ISU
- 3. U.S. National Security Risk Analysis Certificate Course, 5-day intensive course taught with 1-2 other individuals for MORS
 - November 2023, virtual
 - October 2022, virtual
 - September 2021, virtual
 - September 2019, Washington DC
 - September 2018, Washington DC
- 4. Solar and Wind Energy using Engineering Economics Theory (SWEET) Public Workshop
 - August 11, 2021, ISU
 - August 8, 2022, ISU
- 5. Inventory models webinar, September 30 and October 7, 2020, Center for Industrial Research and Service, ISU
- 6. Risk management webinar, October 14 and 21, 2020, Center for Industrial Research and Service, ISU
- 7. Workshop course in decision analysis, Rockwell Collins, September 20, 2016, Cedar Rapids, IA

Prior to ISU

- 8. Resilience Course: State-of-the-art, Basic Principles, Approaches and Theoretical Background, Methods, Tools, Indicators, June 5, 2015, Brussels, Belgium

Courses taught as an assistant professor at Naval Postgraduate School (each course is taught by a team of professors)

- 9. Defense Resources Management Course (multiple times 2012-2015)
- 10. International Defense Resources Management Course (multiple times 2012-2015)
- 11. Multi-Criteria Decision Making (October 2012, November 2013, October 2014)
- 12. Senior International Defense Resources Management Course (July 2013, August 2014)
- 13. Risk Management (April 2013, January 2014, January 2015)
- 14. Naval Air Systems Command Leadership Development Program Capstone (multiple times, 2014-2015)

Co-instructor as a graduate student, University of Oklahoma

- 15. Applied Engineering Statistics (Spring 2012)
- 16. Risk & Decision Analysis (Fall 2011)

IV. INSTITUTIONAL SERVICE

A. University-Level Service

- 1. Session moderator for Annual Symposium on Undergraduate Research and Creative Expression, April 16, 2024
- 2. Artificial Intelligence (AI) Sub-Committee on Teaching (2024-present)

3. Participated in Iowa Illinois Nebraska Louis Stokes for Minority Participation (IINSPIRE LSAMP) faculty focus group interview, November 29, 2017

B. College-Level Service

1. Resilient Infrastructure Strategic Committee as part of college's strategic plan review (2023)
2. Drafted text for ISU engineering's web page on resilient infrastructures as part of Strategic Plan Implementation Committee for Resilient Infrastructures (2018-2019)
3. Participated in faculty-student roundtable for Leadership through Academic Diversity (LEAD) for multicultural students in engineering, November 3, 2017; November 9, 2018; November 15, 2019

C. Department-Level Service

1. Fact-finding committee for review of tenure-track faculty (2024)
2. Therildsen Industrial Engineering Building Art on Campus Public Art Committee (2024-present)
3. IISE Student Chapter Faculty Advisor (2023-present)
4. Committee on Accreditation Board for Engineering and Technology (ABET) Implementation and Planning (2023-present)
5. Fact-finding committee for review of non-tenured faculty (2023)
6. Diversity Equity and Inclusion Committee (2022-2023)
7. Ad-hoc committee to review IMSE Committee Chair (2021)
8. Ad-hoc committee to judge student grade appeal case (2020)
9. Operations Research / Analytics Resource Management Committee (2020 – 2021)
10. Systems Engineering and Engineering Management Graduate Program Committee (2015 – present)
11. Public Relations Committee (2016 – 2017)
12. Board of Regents Review Committee (2015 – 2016)
13. Participated in "Professors Without Powerpoints" for students IE 101 (2020-present)
14. Examiner for qualifying exam for PhD students (2021-present)
15. Poster judge for IE 361 (multiple years) and IMSE Research Symposium (multiple years)

V. PROFESSIONAL SERVICE

Note: At ISU is 2015 – 2022. Prior to ISU is before 2015

A. Editorial and Review Service for Manuscripts

Editorial Board

Editorial Board, *Engineering Economist* (2017-present)

Associate Editor

Military Operations Research (2023-present)

Reviewer

IEEE Systems (2022-present)

Journal of Infrastructure Systems (2023-present)

The Engineering Economist (2017-present)

Reliability Engineering & System Safety (2015-present)

Risk Analysis (2013-present)

IISE Transactions (2014-present)

European Journal of Operations Research (2013-present)

IISE Annual Meeting (2012-present)

Systems Engineering (2019-present)

International Journal of Production Economics (2015-present)

International Conference on Information Systems for Crisis Response and Management (2014-present)

Journal of the Association for Information Science and Technology (2022)

IEEE Access (2020)

Decision Analysis (2016, 2017, 2019)

Disasters Journal (2017)

Omega (2017)

IEEE Homeland Security Technologies Conference (2014-2016)

Journal of Cognitive Engineering and Decision Making (2016)

International Journal of Logistics Management (2016)

Environment Systems and Decisions (2015)

International Journal of Disaster Risk Reduction (2015)

IEEE Transactions on Power Systems (2014)

Journal of Cleaner Production (2014)

Energies (2014)

Annals of Operations Research (2013)

IEEE Transactions on Systems, Man, and Cybernetics, Part A: Systems and Humans (2013)

B. Service to Professional Societies

Society for Risk Analysis (SRA)

- Panel participant on relation between SRA and MORS during Annual Meeting, 2021
- Chair, Defense and Security Specialty Group, 2019
- Vice-Chair, Defense and Security Group, 2018
- Session organizer on infrastructure risks for Annual Meeting, 2016
- Program committee for Annual Meeting, 2013
- Poster judge for Annual Meeting, 2012-2013, 2019
- Chair, Engineering Infrastructure Specialty Group, 2013
- Vice-Chair, Engineering Infrastructure Specialty Group, 2012
- Session organizer on risks of transportation disruptions for Annual Meeting 2011, 2012, and 2013

Institute for Industrial and Systems Engineers (IISE)

- Panel moderator on “The Future of Teaching Engineering Economy” during Annual meeting, 2024

- Panel participant on “The Future of Engineering Economics Research and Education as Seen by the Experts” during Annual Meeting, 2022
- Past president, Engineering Economy Division, 2021-2022
- President, Engineering Economy Division, 2020-2021
- Program Chair and President Elect, Engineering Economy Division, 2019-2020
- Communications Director, Engineering Economy Division, 2018-2019
- Session organizer on transportation systems and on homeland security for Annual Conference & Expo, 2014

Institute for Operations Research and the Management Sciences (INFORMS)

- Co-Editor, *Decision Analysis Today*, Decision Analysis Society, 2016-2021
- Track Chair (with Eva Regnier), Natural Hazards and Operations Research, Annual Meeting, 2017
- Session organizer on decision making in public policy for Annual Meeting, 2016
- Secretary, Junior Faculty Interest Group, 2015-2016
- Session organizer on journal publication tips for Annual Meeting, 2015
- Poster judge for Annual Meeting, 2013
- Session organizer on supply chain disruptions for Annual Meeting, 2013

Military Operations Research Society (MORS)

- Suggest names to organizer of monthly webinar on National Security Risk Analysis Community of Practice

C. Grant Review Activities

1. National Science Foundation, 2016, 2018, panel reviewer
2. Singapore National Research Foundation, 2013, proposal reviewer

D. Government, Educational, or Corporate Advisory Committees

None

E. Other Professional Service

1. Working group for risk sciences workshop, Center for Accelerating Operational Efficiency, May 16-17, 2022
2. Working group on how to improve risk analysis, Society for Risk Analysis, June 29-30, 2018
3. Working group on the science of risk analysis, Society for Risk Analysis, July, 2015
4. 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, October, 2014

VI. DIVERSITY, EQUITY AND INCLUSION ACTIVITIES

1. Co-PI on NSF grant Social Justice Training in Graduate Engineering Education through Critical Civic Engagement
2. Diversity, Equity, and Inclusion Committee for IMSE, 2022-2023

3. Faculty mentor, APEX-E, summer 2022 and 2023, advise incoming freshman on research project
4. Participated in faculty-student roundtable for Leadership through Academic Diversity (LEAD) for multicultural students in engineering, November 3, 2017; November 9, 2018; November 15, 2019
5. Participated in Iowa Illinois Nebraska Louis Stokes for Minority Participation faculty focus group interview, November 29, 2017
6. Faculty mentor, Iowa Illinois Nebraska Louis Stokes for Minority Participation, May 2016-December 2016, advise underrepresented minority on research project

VII. OUTREACH, COMMUNITY ENGAGEMENT AND OTHER ACTIVITIES

A. Outreach Activities

1. Media based on article with Xue Lei, "Quantifying the risk of mass shootings at specific locations"
 - K Miller, "These 5 states have the highest risk of a mass shooting, according to a new study", Yahoo News, August 22, 2023. <https://www.yahoo.com/lifestyle/5-states-have-highest-risk-of-mass-school-shooting-study-143045102.html>
 - A Faguy, "Mass shootings steadily increased over last 50 years—and big states like California and Texas face highest risk, study finds", *Forbes*, August 22, 2023. <https://www.forbes.com/sites/anafaguy/2023/08/22/mass-shootings-steadily-increased-over-last-50-years-and-big-states-like-california-and-texas-face-highest-risk-study-finds/?sh=44d90881488c>
 - "What's the risk of a mass shooting at your school?" SRA press release, August 22, 2023. <https://www.sra.org/2023/08/10/whats-the-risk-of-a-mass-shooting-at-your-school/>
2. Led workshop Simulating Natural Disasters by Rolling Dice at State 4-H Youth Conference, ISU, June 28, 2023
3. Participated in and recruited students for IMSE marking video, 2023
4. Presented on Industrial Engineering as part of STEM Day with the Iowa Wild, April 10, 2023
5. "Winter session: Engineering students make the most of the break" by Martha Haas. ISU web article on my course during the first winter session, 2021
6. "IE course challenges students to consider COVID-19 when modeling and simulating" by Nick Fetty. ISU web article on simulation project, 2020
7. Short YouTube videos highlighting teaching and research initiatives to promote industrial engineering at ISU
 - IE 413 simulation project, 2019
 - IE 564 initial decision problem exercise, 2019
 - IE 561 red bead experiment, 2018
 - Hurricane Decision Simulator project for U.S. Marines, 2017

B. Community Engagement Activities

None

C. Other Activities

1. Leadership team, DataFEWSion Graduate Traineeship, 2021-present. Provide advice for graduate program structure and activities for graduate students
2. Consulting project, "Contact Tracing Algorithm: Supporting Decisions for Track and Trace Teams", World Health Organization, 2021. Helped develop mathematical model for contact tracing