Elnaz Kabir

Curriculum Vitae

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Appointments

2023–Present **Assistant Professor**, *Engineering Technology & Industrial Distribution, Texas A&M University*, College Station, TX

2021–2023 **Postdoctoral Fellow**, *Biological & Environmental Engineering, Cornell University*, Ithaca, NY

Education

2021 **Ph.D.**, *Industrial & Operation Engineering, University of Michigan*, Ann Arbor, MI

2017 **M.Sc.**, *Statistics, University of Michigan*, Ann Arbor, MI

2011 **B.Sc.**, *Industrial Engineering, K. N. Toosi University of Technology*, Tehran, Iran

Research Interests and Expertise

Methodology

Data Analytics, Statistical Machine Learning, Risk Analytics, Robust and Stochastic Optimization.

Application Area

Resilient Energy Systems; Power System Decarbonization; Power-Outage Management; Disaster Operations Management

Academic Publications

Published and Accepted Journal Articles

2023 **E. Kabir**, S. Guikema, and S. Quiring, Power Outage Prediction Using Data Streams: An Adaptive Ensemble Learning Approach with a Feature- and Performance-based Weighting Mechanism, *Risk Analysis*

2019 **E. Kabir**, S. Guikema, and S. Quiring, Predicting Thunderstorm-induced Power Outages to Support Utility Restoration, *IEEE Transactions on Power Systems*

2018 **E. Kabir**, S. Guikema, and B. Kane, Statistical Modeling of Tree Failures During Storms, *Reliability Engineering and System Safety*

2016 E. Keyvanshokooh, S.M. Ryan, and **E. Kabir**, Hybrid Robust and Stochastic Optimization Approach for Closed-loop Supply Chain Design Network using an Accelerated Benders Decomposition, *European Journal of Operational Research*

Submitted Journal Articles

2023 **E. Kabir**, V. Srikrishnan, V. Liu, S. Steinschneider, L. Anderson, Quantifying the multi-scale and multi-resource impacts of large-scale adoption of renewable energy sources, *arXiv:2307.11076*

2023 V. Liu, V. Srikrishnan, K. Doering, **E. Kabir**, S. Steinschneider, L. Anderson, Heterogeneous Vulnerability of Zero-Carbon Power Grids under Climate-Technological Changes, *arXiv:2307.15079*

Articles in Preparation and Working Papers

2023 **E. Kabir**, S. Guikema, and S. Quiring, B. McRoberts, A Spatiotemporal Analysis for Weather-Related Drivers of Power System Damages

2023 **E. Kabir**, S. Guikema, Data-driven and Adaptive Robust Crew Coordination Model for Power Outage Restoration

Honors and Awards

2019 **Winner of the Best Student Paper Award**, Society for Risk Analysis (SRA), SRA Annual Meeting, Arlington, VA

2019 **Finalist for the Best Poster Competition**, The Second Conference on Risk Analysis, Decision Analysis and Security, Buffalo, NY

2019 **Selected to Attend the INFORMS Doctoral Student Colloquium** at the INFORMS Annual Meeting in Seattle, IOE Departmental nomination, University of Michigan, Ann Arbor, MI.

2018, 2019 **Being Awarded the Engineering Graduate Fellowship Award** for Providing Outstanding Service, IOE Department, University of Michigan, Ann Arbor, MI.

2016 **Winner of the Best Poster Competition**, SRA Annual Meeting, San Diego, CA

2018,2019 **Travel Awards**, Rackham Graduate School, University of Michigan, Ann Arbor, MI.

2017,2019 **Travel Awards**, SRA Annual Meetings

Teaching

Fall 2023 **Analytics for Distribution Operations** (IDIS 450), Texas A&M University

Fall 2018 **Decision Analysis** (IOE 460), University of Michigan *Score: 4.6/5*

Service

Elected Positions at Professional Societies:

2018-2020 Treasurer, Engineering and Infrastructure Specialty Group, the International Society for Risk Analysis

Award Committees:

2019 Judge, Best Paper competition, SRA Engineering and Infrastructure Specialty Group

Memberships:

2016-Present INFORMS: Institute for Operations Research and Management Science

2016-Present SRA: Society for Risk Analysis

Conference Session Chair:

2020 INFORMS Annual Meeting, Power System cluster

2019 SRA Annual Meeting, Engineering and Infrastructure Specialty Group

Journal Referee

2015–Present Served as a reviewer for the journals of Risk Analysis, Reliability Engineering and System Safety, IEEE Access, IEEE Transactions on Power Systems, IEEE Transactions on Power Delivery, European Journal of Operational Research, Transaction Research Part E, Decision Sciences, Operations Research perspectives, and Climate Change

Service to the University of Michigan

2018-2020 Graduate Student Coordinator, IOE Department.

2019-2020 Secretary for the INFORMS Student Chapter, IOE Department

Presentations

Invited Seminar Presentations

Oct 2023 Towards Zero-Carbon Power Grids: A Multi-Scale and Multi-Resource Exploration of Vulnerabilities and Underlying Drivers, Department of Industrial & Systems Engineering, Texas A&M University.

Jan 2023 Predictive & Prescriptive Analytics for Power System Resiliency, Department of Engineering Technology and Industrial Distribution, Texas A&M University.

Jun 2020 Predictive and Risk Analytics for Weather-Induced Power Outage Management, Graduate Student Research Summer Series, School of Industrial and Systems Engineering, University of Oklahoma.

Invited Conference Presentations

Oct. 2023 E. Kabir, V. Srikrishnan, V. Liu, S. Steinschneider, L. Anderson, "Multi-scale And Multi-resource Analysis Of Increased Adoption Of Renewable Energy Sources", INFORMS Annual Meeting, Phoenix, AZ, USA.

Dec. 2021 E. Kabir and S. Guikema, "A Repair Crew Coordination Model Under Uncertainty for Power Outage Restoration", Virtual SRA Annual Meeting.

Nov. 2016 E. Kabir and S. Guikema, "Learning of Imbalanced Data for Predicting the Power-Outages", INFORMS Annual Meeting, Nashville, PA, USA.

Contributed Conference Presentations

Nov 2020 E. Kabir, S. Guikema, and S. Quiring, "Adaptive Two-stage Bayesian Model Averaging for Estimating the Impact of Hazards on Power System Service", Virtual INFORMS Annual Meeting.

Dec. 2019 E. Kabir, S. Guikema, and S. Quiring, "Predicting Daily Power Outages Using a Bayesian Model Averaging", SRA Annual Meeting, Arlington, VA, USA.

Oct. 2019 E. Kabir, S. Guikema, and S. Quiring, "Predicting Daily Power Outages Using a Bayesian Model Averaging Approach", INFORMS Annual Meeting, Seattle, WA, USA.

Dec. 2018 E. Kabir, S. Guikema, and S. Quiring, "Developing Probabilistic Models for Predicting Zero-inflated Power-Outages", SRA Annual Meeting, New Orleans, LA, USA.

Nov. 2018 E. Kabir, S. Guikema, and S. Quiring, "Probabilistic Mixture Models for Predicting Unbalanced Thunderstorm-Induced Power-Outages", INFORMS Annual Meeting, Phoenix, AZ, USA.

Dec. 2017 E. Kabir and S. Guikema, "Learning from Imbalanced Data Sets for Estimating Power-Outages", SRA Annual Meeting, Arlington, VA, USA.

Jul. 2016 E. Kabir, S. Guikema, and B. Kane, "Statistical Modeling of Tree Failures During Storms", Joint Statistical Meeting, Baltimore, MD, USA.

Poster Presentations

Dec. 2020 E. Kabir and S. Guikema, "Resource allocation optimization problem for power outage restoration under uncertainty", Virtual SRA Annual Meeting.

Dec. 2020 E. Kabir, S. Guikema, and S. Quiring, "Studying Power System Damages Using Bayesian Belief Network Analysis", Virtual SRA Annual Meeting.

Dec. 2019 E. Kabir and S. Guikema, "Assessing ISA Tree Risk Assessment Approach Using Econometrics Analysis", SRA Annual Meeting, Arlington, VA, USA.

Jul. 2019 E. Kabir and S. Guikema, "Predicting Daily Power Outages Using the Bayesian Model Averaging", The Second Conference on Risk Analysis, Decision Analysis and Security, Buffalo/Niagara Falls, NY, USA.
(The work was awarded for being a finalist in the poster competition.)

Feb. 2019 E. Kabir, S. Guikema, and S. Quiring, "Predicting Thunderstorm-Induced Power Outages to Support Utility Restoration", Michigan University-Wide Sustainability and Environment (MUSE) Conference, University of Michigan, Ann Arbor, MI, USA.

Dec. 2016 E. Kabir and S. Guikema, "Comparison and validation of statistical methods for predicting the failure probability of trees", SRA Annual Meeting, San Diego, CA, USA.
(This work was awarded the best poster award.)

Sep. 2016 Elnaz Kabir, S. Guikema, and Brian Kane, "Ensemble Model of Boosting and Random Forest for Predicting the Failure Probability of Trees", Engineering Graduate Symposium (EGS), University of Michigan, Ann Arbor, MI, USA.