

Melika Jahan Beikloo

Ph.D. Candidate in Industrial Engineering, Clemson University, Clemson, SC

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Academic Summary

I am a Ph.D. candidate in Industrial Engineering at Clemson University. My research develops optimization, simulation, and data-analytic models to support decision-making in public health systems, with a focus on opioid epidemic response, harm reduction access, and uncertainty in illicit supply networks. My work combines stochastic optimization, agent-based modeling, spatial analysis, and regression modeling to translate complex system behavior into policy-relevant insights. I am committed to developing an interdisciplinary academic research program while contributing to student-centered teaching, mentoring, and collaborative problem-solving in industrial and systems engineering.

Education

Clemson University

Ph.D. in Industrial Engineering, August 2022 – August 2027 (Expected), GPA: 3.91/4

Dissertation (in progress): Essays on Modeling the Opioid Epidemic: Regression, Stochastic Bilevel Optimization, and Agent-Based Modeling

Proposal defended: August 5, 2026

Chair: Dr. Mary E. Kurz | Committee: Dr. Thomas Sharkey, Dr. Bryan Lee Miller, and Dr. Kevin Taaffe

Master of Science in Industrial Engineering, 2024, Completed en route to Ph.D.

University of Tehran, Tehran, Iran

Bachelor of Science in Industrial Engineering, September 2016 – September 2020, GPA: 3.71/4

Research Experience

Graduate Research Assistant, Department of Industrial Engineering, Clemson University

Advisor: Dr. Mary Elizabeth Kurz | January 2024 – Present

- Conduct NSF-funded interdisciplinary research on opioid epidemic modeling, harm reduction access, and public health decision support using agent-based modeling, geospatial analysis, and regression methods.
- Develop an agent-based model in an Oconee County, South Carolina, pilot setting that incorporates opioid-use behavior, naloxone and treatment access, healthcare and justice-system interactions, illicit supply dynamics, and overdose risk.

- Develop spatial and statistical models, including spatial error and negative-binomial models, to examine relationships among naloxone access, opioid-overdose mortality, opioid-related emergency-department utilization, healthcare access, and socioeconomic conditions across South Carolina communities.
- Integrate public health, criminal justice, socioeconomic, and geospatial data sources to support simulation design, policy analysis, and manuscript development.

Lead Researcher, Fentanyl Supply Chain and Disruption Modeling

Collaborators: Dr. Thomas Sharkey and Dr. Mary Elizabeth Kurz | March 2025 – Present

- Develop a stochastic optimization framework for modeling fentanyl supply networks under uncertainty in drug potency and downstream public health harm.
- Formulate and analyze a bilevel optimization model representing interactions between a public health disruptor and an illicit supply network.
- Conduct scenario-based computational experiments to evaluate how supply disruption, backup substitution, uncertain drug potency, and harm-reduction access influence expected and risk-sensitive public-health harm.

Collaborator, Mixed-Model Sequencing in Assembly Lines

Collaborators: Dr. Mary Elizabeth Kurz and Dr. Anas Al-Sayed Al-Ghazi | May 2025 – June 2026

- Contribute to a mixed-model sequencing study focused on minimizing work overload in automotive assembly lines.
- Implement and benchmark metaheuristic solution approaches, including GRASP, with station interaction and skip-policy extensions.
- Support journal manuscript development through Python implementation, experiment design, large-scale computational testing, and validation against integer programming benchmarks.

Research Assistant — Economics Course, University of Tehran, February 2020–June 2020

- Mentored student research teams in developing research questions and methodologies and collecting and analyzing economic data.
- Reviewed research proposals, reports, and presentations and facilitated collaborative discussions.

Grant Development Experience

NSF IUSE: EDU Level 1 Proposal Development, May 2026 – Present

Department of Industrial Engineering, Clemson University

- Contribute to the development of an NSF IUSE: EDU Level 1 proposal through program analysis, literature synthesis, gap identification, project framing, and alignment of the proposed work with the funding opportunity.
 - Conducted a comprehensive literature review and coding-matrix analysis and am developing the proposal budget and justification in collaboration with the faculty PI.
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Teaching Experience

Graduate Teacher of Record – Engineering Economic Analysis, August 2026 – Present

Department of Industrial Engineering, Clemson University

- Independently teach Engineering Economic Analysis to 72 undergraduate students.
- Design and deliver course materials, homework, assessments, and learning activities aligned with course objectives.
- Lead class sessions, hold office hours, monitor student progress, and foster active engagement with the material.
- Coordinate and mentor a 20-hour-per-week teaching assistant.

Graduate Teaching Assistant — Engineering Economic Analysis, January 2026 – May 2026

Department of Industrial Engineering, Clemson University

- Led practice sessions to help students apply engineering economy concepts to economic decision-making problems.
- Held office hours and provided individualized support on course concepts, homework preparation, and exam review.
- Graded assignments using course rubrics and provided feedback to strengthen students' analytical reasoning and problem-solving approaches.
- Identified common student difficulties through grading and office hours and communicated patterns to support targeted review.

Graduate Teaching Assistant — Industrial Engineering Courses, September 2022 – January 2024

Department of Industrial Engineering, Clemson University

Courses supported: Model Systems Under Risk; Facilities Planning and Design; Case Studies in Logistics and Transportation; Descriptive Analysis

- Supported instruction across undergraduate and graduate courses in stochastic modeling, facilities planning, logistics and transportation, and data analysis.
- Held office hours and review sessions to support students with assignments, exams, and applied problem-solving.
- Assisted with assignment preparation, grading, feedback, and communication of common student difficulties to course instructors.

Teaching Assistant and Program Support, Clemson University Study Abroad Program, May 2023–June 2023

- Supported teaching and course preparation for a Clemson University study-abroad program in Clermont-Ferrand, France.
- Provided academic and logistical support to students and assisted faculty with group coordination, educational activities, and program-related travel.

Researcher and Instructor, Process Engineering and Resource Management Research Center (UTPERM), University of Tehran, October 2020–December 2022

- Conducted research on process-mining methods and applications across organizational and industrial settings.
- Developed and delivered process-mining course materials, lectures, applied exercises, and hands-on training for university students and industry professionals.

Teaching Assistant — Facilities Design, University of Tehran, February 2020–June 2020

- Assisted with assignments, grading, review sessions, and student support in Facilities Design.
- Clarified course concepts and provided feedback to support student problem-solving and assessment preparation.

Publications and Manuscripts

Jahan Beikloo, M., Kurz, M. E., Toyoda, M., Suiter, E., Miller, B. L., Kang, H. “A Typology Based on Naloxone Availability, Opioid Overdose Mortality, and Emergency Department Visits in South Carolina.” *Substance Use & Misuse*. Under review.

Toyoda, M., Kurz, M. E., Miller, B. L., **Jahan Beikloo, M.**, Kang, H. "Beyond the Overdose: Examining Naloxone Administration and Repeated Emergency Department Visits." *Public Health Reports*. Under review.

Alghazi, A., Kurz, M. E., **Jahan Beikloo, M.**, Al Hanbali, A. "The Mixed Model Sequencing Problem with Skip Policy and Open Stations." Revised and resubmitted to *Computers & Industrial Engineering*, September 2026.

Griffin, G.* , Fletcher, A.* , Goto, D.* , Sabogal De La Pava, M., **Jahan Beikloo, M.**, White, D., Tucker, E. L. "Optimizing Park Locations with Imperfect Information." *Proceedings of the IISE Annual Conference & Expo, 2026*.
doi:10.21872/2026IISE_17176.

* Indicates undergraduate researchers mentored on the REU project.

Conference Presentations and Posters

Oral Presentations

Jahan Beikloo, M., Sharkey, T., Kurz, M. E., & Janan, F. "Modeling and Mitigating Harm in Illicit Fentanyl Supply Networks via Stochastic Bilevel Optimization." *INFORMS Annual Meeting*, Job Market Showcase, San Francisco, California, November 1, 2026. Scheduled from 3:39 to 3:57 p.m. in Moscone South 204.

Jahan Beikloo, M., Janan, F., Sharkey, T., Kurz, M. E. "Mitigating Harm from Disruption in Illicit Fentanyl Supply Networks: A Stochastic Bilevel Optimization Approach." *INFORMS Healthcare Conference*, Raleigh, NC, 2026.

Jahan Beikloo, M., Kurz, M. E., Miller, B. L., Sharkey, T., & Kang, H. "Agent-Based Modeling of Opioid Use and Harm Reduction Strategies in Community Settings." *INFORMS Annual Meeting*, Atlanta, GA, 2025.

Jahan Beikloo, M., Kurz, M. E., Miller, B. L., Sharkey, T., & Kang, H. "Assessing the Distribution of Naloxone Across Communities in South Carolina." *IISE Annual Conference & Expo*, Health Systems Track, Atlanta, GA, 2025.

Jahan Beikloo, M., Kurz, M. E., Miller, B. L., Sharkey, T., Kang, H., & Spence, C. "Assessing the Equitable Distribution of Naloxone Locations in South Carolina." *INFORMS Annual Meeting*, Seattle, WA, 2024.

Coauthored Conference Presentation

Griffin, G.* , Fletcher, A.* , Goto, D.* , Sabogal De La Pava, M., **Jahan Beikloo, M.**, White, D., & Tucker, E. L. "Optimizing Park Locations with Imperfect Information." *IISE Annual Conference & Expo*, Arlington, TX, 2026.

Poster Presentations

Jahan Beikloo, M., Spence, C., Kurz, M. E., Miller, B. L., & Sharkey, T. "Targeted Analysis of the Opioid Crisis Using GIS and ABM in a Specific Community." *Southern Criminal Justice Association Conference*, Greenville, SC, 2024.

Academic Service and Leadership

Undergraduate Research Mentor, NSF REU Program, Clemson University, Summer 2025

- Mentored three undergraduate researchers on literature review, data analysis, academic writing, and graduate-school preparation.
- Held regular meetings and provided feedback to support students' research progress and professional development.
- Supported the development of a park-location optimization study that resulted in a coauthored paper published in the 2026 IISE Annual Conference proceedings.

Ad Hoc Reviewer, Socio-Economic Planning Sciences, 2026

President, INFORMS Student Chapter, Clemson University, August 2024 – August 2025

- Led strategic planning, event coordination, and outreach for a multidisciplinary chapter serving 100+ graduate student members.
- Organized academic and professional-development events, including a graduate student welcoming session with 50+ attendees and conference practice sessions with 15–20 participants.
- Facilitated collaborations with peer student chapters and served as liaison among chapter officers, faculty advisor, and INFORMS.
- Led the chapter during the 2024–2025 award year, when it received the INFORMS Student Chapter Annual Award at the Magna Cum Laude level.

Industrial Engineering Representative, CECAS Graduate Student Advisory Board, Clemson University, January 2023–August 2025

- Represented the Industrial Engineering department in college-level discussions on graduate student well-being, funding access, and professional development.
- Contributed to travel-grant evaluation and cross-departmental academic and community-building initiatives.

Honors, Awards, and Funding

NSF Travel Support Award, *Spring 2025*

Graduate Travel Grant (GTG), Clemson University, *Fall 2024*

Top Engineering Student Award, University of Tehran, *2020*

Professional Development and Certifications

FutureBAProf Workshop, University of Iowa, August 2026

Selected as one of 22 participants from 117 applicants, representing 21 institutions, for a workshop focused on academic careers in business analytics, including research, teaching, job-market preparation, and early faculty career development.

Engineering Unleashed Emerging Engineering Educators (EMEE) Workshop, Nashville, TN, 2026

Participated in a national faculty-development workshop focused on academic career preparation and entrepreneurial mindset-based engineering education.

IISE Future Faculty Fellow (3F Program), 2025–2026

Selected for a competitive, yearlong national program preparing Ph.D. students for academic careers in Industrial and Systems Engineering.

Certified Graduate Mentor, Clemson University, April 2026

Tigers Together Suicide Prevention Advocacy, Clemson University, April 2026

Conflict Management Certification, Clemson University, January 2026

Technical and Analytical Skills

Programming and Modeling: Python, R, Gurobi, Agent-Based Modeling, Linear and Nonlinear Optimization, Stochastic Programming, and Computational Experimentation

Statistical and Analytical Methods: Spatial Regression, Poisson and Negative-Binomial Regression, Scenario-Based Analysis, Time-Series Analysis, Data Visualization, and Experimental Design

Geospatial and Research Tools: ArcGIS, LaTeX/Overleaf, Mendeley, and GitHub

Professional Memberships

- Member, Institute of Industrial and Systems Engineers (IISE)
- Member, INFORMS — Institute for Operations Research and the Management Sciences