

Miao Bai

Assistant Professor

Department of Operations and Information Management
School of Business, University of Connecticut

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Contact Information

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Academic and Professional Appointments

University of Connecticut	Storrs, CT
Department of Operations and Information Management, School of Business	
Assistant Professor	2019–present
Mayo Clinic	Rochester, MN
Research Collaborator	2019–2025
Postdoctoral Research Associate	2017–2019
Sabre Airline Solutions	Southlake, TX
Operations Research Intern	May–August 2016

Education

Lehigh University	Bethlehem, PA
Ph.D., Industrial and Systems Engineering	2017
Advisors: Robert H. Storer and Gregory L. Tonkay	
The Hong Kong Polytechnic University	Hong Kong
B.Eng. (First Class Honors), Industrial and Systems Engineering	2011

Research Interests

Healthcare operations and patient access management; population-level health policy and behavior; decision-analytic methodologies.

Publications

Author order is alphabetical by default; non-alphabetical order reflects relative contribution. *Student co-author. †Equal contribution.

Refereed Journal Articles

- [P1] M. Bai, G. Q. Chen, C. Li. The Sooner, the Better? Optimal Vaccination Policy with Limited Vaccine Supply. Accepted by *Operations Research*.
- [P2] M. Bai[†], S. He[†], X. Li, A. Sengupta*. 2026. Ride-to-Health: The Impact of Ridesharing on Patients' Emergency Care Access. Forthcoming in *Production and Operations Management*.
- [P3] D. Li*, M. Bai, D. Wang, X. Xian. 2026. A Bayesian Jump Model-Based Pathwise Sampling Approach for Online Anomaly Detection. Forthcoming in *IIE Transactions*.
 - Finalist, INFORMS Data Mining Society Best Student Paper Competition, 2024 (student co-author: Dongmin Li).
- [P4] M. Bai, N. Liu, Z. Zhang. 2025. Helping the Captive Audience: Advance Notice of Diagnostic Service for Hospital Inpatients. *Manufacturing & Service Operations Management*, 27(4), 1313–1331.
 - Finalist, INFORMS Pierskalla Best Paper Award, 2025.
 - First place, INFORMS Service Science Best Cluster Paper Competition, 2023.
- [P5] K. R. Gergelis[†], M. Bai[†], J. Ma, D. M. Routman, B. J. Stish, B. J. Davis, T. M. Pisansky, T. J. Whitaker, R. Choo. 2025. Long-Term Patient-Reported Bowel and Urinary Quality of Life in Patients Treated with Intensity-Modulated Radiotherapy versus Intensity-Modulated Proton Therapy for Localized Prostate Cancer. *Current Oncology*, 32(4), 212.
- [P6] M. Bai, Y. Cui, G. Kong, A. Z. Zhang*. 2024. No Panic in Pandemic: The Impact of Individual Choice on Public Health Policy. *Manufacturing & Service Operations Management*, 26(5), 1622–1638.
 - Second place, POMS College of Humanitarian Operations and Crisis Management Best Paper Competition, 2021.
 - Winner, DSI Best Problem-Driven Analytical Research Paper Award, 2021.
 - First place, Post-Pandemic Supply Chain and Healthcare Management Conference Best Paper Competition, 2021.
- [P7] D. Li*, M. Bai, X. Xian. 2024. Data-Driven Pathwise Sampling Approaches for Online Anomaly Detection. *Technometrics*, 66(4), 600–613.
 - Finalist, INFORMS Quality, Statistics, and Reliability Best Paper Competition, 2021.
- [P8] M. Bai, B. Berg, E. Sisikoglu Sir, M. Y. Sir. 2023. Partially Partitioned Templating Strategies for Outpatient Specialty Practices. *Production and Operations Management*, 32, 301–318.
 - Finalist, POMS College of Healthcare Operations Management Best Paper Competition, 2021.
- [P9] M. Bai, R. H. Storer, G. L. Tonkay. 2022. Surgery Sequencing Coordination with Recovery Resource Constraints. *INFORMS Journal on Computing*, 34(2), 1207–1223.
- [P10] M. Bai[†], K. R. Gergelis[†], M. Y. Sir, T. J. Whitaker, D. M. Routman, B. J. Stish, B. J. Davis, T. M. Pisansky, R. Choo. 2020. Comparing Bowel and Urinary Domains of Patient-Reported Quality of Life at the End of and 3 Months Post Radiotherapy between Intensity-Modulated Radiotherapy and Proton Beam Therapy for Clinically Localized Prostate Cancer. *Cancer Medicine*, 9(21),

7925–7934.

- [P11] M. Bai, M. Y. Sir, K. S. Pasupathy. 2019. Pattern-Based Strategic Surgical Capacity Planning. *Journal of Biomedical Informatics*, 94, 103170.
- [P12] M. Bai, R. H. Storer, G. L. Tonkay. 2017. A Sample Gradient-Based Algorithm for a Multiple-OR and PACU Surgery Scheduling Problem. *IIE Transactions*, 49(4), 367–380.
 - Winner, Van Hoesen Family Best Publication Award, ISE Department, Lehigh University, 2016.

Manuscripts Under Review or Revision

- [RR1] C. Cardonha, M. Bai. Cardinality-Constrained Knapsack Problem with Concave Piecewise Linear Utilities.
 - Second-round revise and resubmit, *European Journal of Operational Research*.
- [RR2] C. Zhao*, M. Bai, Z. Zhang, X. Liao*. Simulation Optimization Approach for Managing Appointments of a Multi-Stage Multi-Server System.
 - Under second-round review, *Omega*.

Selected Works in Progress

- [WP1] C. Zhao*, M. Bai, Z. Zhang. Patient Admission and Routing in One-Stop Clinics.
- [WP2] M. Bai, G. Kong, J. Peng*. STAT vs. Routine: Strategic Misreporting of Service Urgency.

Other Publications

- K. R. Gergelis, M. Bai, J. Ma, D. M. Routman, B. J. Stish, B. J. Davis, T. M. Pisansky, T. J. Whitaker, R. Choo. 2023. Long-Term Patient-Reported Bowel and Urinary Quality of Life in Patients Treated with Intensity-Modulated Radiotherapy and Intensity-Modulated Proton Therapy for Localized Prostate Cancer. *International Journal of Radiation Oncology, Biology, Physics*, 117(2), e385.
 - Published conference abstract corresponding to [P5].
- K. R. Gergelis, M. Bai, T. J. Whitaker, D. M. Routman, M. Y. Sir, R. Choo. 2020. Acute Patient-Reported Toxicities after Proton Therapy or Intensity-Modulated Radiotherapy for Prostate Cancer. *Journal of Clinical Oncology*, 38(6), 305.
 - Published conference abstract corresponding to [P10].
- H. C. Man, M. Bai, F. T. Cheng. 2011. Laser Diffusion Nitriding of Ti-6Al-4V for Improving Hardness and Wear Resistance. *Applied Surface Science*, 258, 436–441.
 - Undergraduate research paper.

Honors & Awards

Received During Faculty Appointment

- Finalist, INFORMS Pierskalla Best Paper Award, 2025.
- MSOM Meritorious Service Award, 2025.
- Finalist, INFORMS Data Mining Society Best Student Paper Competition, 2024 (student co-author: Dongmin Li).

- First place, INFORMS Service Science Best Cluster Paper Competition, 2023.
- Winner, DSI Best Problem-Driven Analytical Research Paper Award, 2021.
- First place, Post-Pandemic Supply Chain and Healthcare Management Conference Best Paper Competition, 2021.
- Second place, POMS College of Humanitarian Operations and Crisis Management Best Paper Competition, 2021.
- Finalist, POMS College of Healthcare Operations Management Best Paper Competition, 2021.
- Finalist, INFORMS Quality, Statistics, and Reliability Best Paper Competition, 2021.

Received During Doctoral Studies

- Nominee, Elizabeth V. Stout Dissertation Award, 2017.
 - Departmental nomination for the college-wide dissertation award at Lehigh University.
- Winner, Van Hoesen Family Best Publication Award, ISE Department, Lehigh University, 2016.
- Winner, Teaching Assistant of the Year, Lehigh University, 2016.
 - University-wide graduate teaching award; sole recipient.
- Honorable mention, Graduate Life Leadership Award, Lehigh University, 2016.
- Honorable mention, Teaching Assistant of the Year, Lehigh University, 2013 and 2015.

Invited Seminar Presentations

- [1] Department of Infectious Diseases and Public Health, City University of Hong Kong, 2026.
- [2] School-wide Research Seminar, UConn School of Business, 2024.
- [3] School of Management, Zhejiang University, 2021.
- [4] Healthcare Systems Engineering Program, Lehigh University, 2020.
- [5] Kern Center for the Science of Health Care Delivery, Mayo Clinic, 2017.
- [6] Surgery Grand Rounds, St. Luke's University Hospital, 2017.
- [7] Healthcare Systems Engineering Program, Lehigh University, 2017.

Selected Conference Presentations

Presenter indicated when other than Miao Bai.

- [1] C. Zhao, M. Bai, Z. Zhang. Patient Admission and Routing in One-Stop Clinics.
 - CSAMSE 2026, INFORMS 2026 (scheduled).
- [2] C. Zhao, M. Bai, Z. Zhang, X. Liao. Simulation Optimization Approach for Managing Appointments of a Multi-Stage Multi-Server System.
 - POMS 2025 (by Zhao).
- [3] M. Bai, G. Kong, J. Peng. STAT vs. Routine: Strategic Misreporting of Service Urgency.
 - POMS 2025 (by Peng).
- [4] M. Bai, G. Q. Chen, C. Li. The Sooner, the Better? Optimal Vaccination Policy with Limited Vaccine Supply.

- INFORMS 2025 (by Chen), MSOM 2025 (by Chen), INFORMS 2024, POMS 2024.
- [5] D. Li, M. Bai, D. Wang, X. Xian. A Bayesian Jump Model-Based Pathwise Sampling Approach for Online Anomaly Detection.
 - IISE 2025 (by Li), INFORMS 2024 (by Li).
- [6] M. Bai, G. Q. Chen, C. Li. First Dose or Second Dose? A Study of Vaccination Policy with Supply and Capacity Constraints.
 - INFORMS 2023, POMS 2023.
- [7] M. Bai, N. Liu, Z. Zhang. Helping the Captive Audience: Advance Notice of Diagnostic Service for Hospital Inpatients.
 - INFORMS 2025, MSOM 2025 (by Liu), POMS 2025, INFORMS 2024 (by Zhang), POMS 2024, INFORMS 2023, INFORMS Healthcare 2023 (by Liu), MSOM 2023, POMS 2023, INFORMS 2022, CSAMSE 2022 (by Zhang), POMS 2022.
- [8] C. Cardonha, M. Bai. Cardinality-Constrained Knapsack Problem with Concave Piecewise Linear Utilities.
 - POMS International 2023 (by Cardonha), MSOM 2023 (by Cardonha).
- [9] M. Bai, S. He, X. Li, A. Sengupta. Ride-to-Health: The Impact of Ridesharing on Patients' Emergency Care Access.
 - INFORMS 2022 (by Sengupta), Platform Strategy Research Symposium 2022 (by Sengupta), CHITA 2022 (by Sengupta), CIST 2021 (by Sengupta), INFORMS 2021 (by Sengupta).
- [10] M. Bai, Y. Cui, G. Kong, A. Z. Zhang. No Panic in Pandemic: The Impact of Individual Choice on Public Health Policy.
 - POMS 2023, INFORMS 2022, POMS 2022, DSI 2021, INFORMS 2021 (by Kong), CSAMSE 2021, INFORMS Healthcare 2021, Post-Pandemic Supply Chain and Healthcare Management Conference 2021 (by Kong), MSOM 2021, POMS 2021.
- [11] D. Li, M. Bai, X. Xian. Data-Driven Pathwise Sampling Approaches for Online Anomaly Detection.
 - INFORMS 2022 (by Li), INFORMS 2021 (by Li), MSOM 2021, POMS 2021.
- [12] M. Bai, B. Berg, E. Sisikoglu Sir, M. Y. Sir. Priority-Based Templating for Outpatient Specialty Practices.
 - INFORMS 2021, POMS 2021, INFORMS 2020, INFORMS 2019, INFORMS Healthcare 2019.
- [13] K. R. Gergelis, M. Bai, M. Y. Sir, T. J. Whitaker, D. M. Routman, B. J. Stish, B. J. Davis, T. M. Pisansky, R. Choo. Acute Patient-Reported Toxicities after Proton Therapy or Intensity-Modulated Radiotherapy for Prostate Cancer.
 - ASCO Genitourinary Cancers Symposium 2020 (by Gergelis).
- [14] M. Bai, R. H. Storer, G. L. Tonkay. Surgery Sequencing and Scheduling in Multiple ORs with PACU Constraints.
 - IISE 2016, INFORMS 2015.
- [15] M. Bai, R. H. Storer, G. L. Tonkay. A Sample Gradient-Based Algorithm for Multiple-OR and PACU Surgery Scheduling.
 - INFORMS 2015, MOPTA 2015.

Media Coverage

- Research Spotlight: Improving Data Sampling Methods, *Warren B. Nelms Institute for the Connected World*, 2022.
- No Panic in Pandemic, *Discover Fox*, Temple University, 2022.
- Social Distancing Should Stick Around, *The Hill*, 2021.
- A New Mathematical Model Streamlines Hospital OR Scheduling, *Lehigh News*, 2017.

Teaching Experience

University of Connecticut

OPIM 3104 Operations Management

- 11 sections, Fall 2019–Spring 2026; average rating: 4.77/5.

OPIM 3602 Supply Chain Logistics (*new course development*)

- 6 sections, Fall 2023–Spring 2026; average rating: 4.60/5.

Lehigh University

All courses below were taught as the instructor of record during doctoral studies.

ISE 215 Fundamentals of Modern Manufacturing

- 2 sections, Summer 2012–Summer 2013; average rating: 4.86/5.

ISE 216 Manufacturing Laboratory

- 6 sections, Fall 2011–Fall 2016; average rating: 4.50/5.

ISE 132 Work Systems Laboratory

- 6 sections, Spring 2012–Spring 2017; average rating: 4.66/5.

Mentorship and Advising

- Ph.D. Associate Advisor, Ayush Sengupta, UConn, 2021–2023. Placement: Assistant Professor, Alfred University.
- Ph.D. Associate Advisor, Saharnaz Mehrani, UConn, 2020–2021. Placement: Assistant Professor, Florida Atlantic University.
- Ph.D. Dissertation Committee Member, Secil Sozuer, Lehigh University, 2017–2024.
- Supervisor, Can Zhao, visiting Ph.D. student from Zhejiang University, 2024–2025.
- Research Mentor, Xinchang Liu, master’s student at Columbia University, 2023. Current position: Ph.D. student, City University of Hong Kong.
- Master’s Thesis Co-advisor, Amelia Conway, Lehigh University, 2020–2021.
- Undergraduate Intern Mentor, Behic Guven, Mayo Clinic, 2018.

Professional Service

Editorial Service

- Associate Editor, *Decision Sciences*, 2026–present.
- Ad hoc reviewer for journals including *Decision Support Systems*, *Health Care Management Science*, *IIE Transactions*, *IIE Transactions on Healthcare Systems Engineering*, *INFORMS Journal on*

Computing, Manufacturing & Service Operations Management, Naval Research Logistics, Operations Research, and Production and Operations Management.

- Ad hoc reviewer for conferences: MSOM Conference, 2024; MSOM SIG, 2024–2026.

Judging Service

- Judge, INFORMS Pierskalla Best Paper Award, 2026.
- Judge, MSOM Student Paper Competition, 2021–2026.
- Judge, POMS College of Healthcare Operations Management Best Paper Competition, 2022, 2026.
- Judge, INFORMS Service Science Best Student Paper Competition, 2026.
- Judge, INFORMS Service Science Best Cluster Paper Competition, 2026.
- Judge, CSAMSE Best Paper Competition, 2025.
- Judge, INFORMS Poster Competition, 2023.

Grant Review Service

- External grant reviewer, University of Maryland, Baltimore, 2026.

Conference Organization

- Co-chair, Public Health Policy Cluster, INFORMS Healthcare Conference, 2026.
- Session Chair/Co-chair, INFORMS Annual Meeting, 2018–2019 and 2023–2025.
- Session Chair/Co-chair, POMS Annual Conference, 2022–2026.
- Session Chair/Co-chair, CSAMSE Conference, 2026.
- Session Chair/Co-chair, INFORMS Healthcare Conference, 2023.

Institutional Service

School and Departmental Service

- Coordinator, OPIM Department Research Seminar, 2025–2026.
- Co-coordinator, OPIM Department Research Seminar, 2024–2025.
- Member, Management and Engineering for Manufacturing Program Committee, 2020–present.
- Invited Panelist, School-level Panel on Large-class Teaching, 2025.
- Member, Departmental Ph.D. Qualifying Paper Committee, 2021–2023.
- Member, Departmental By-laws Committee, 2023.
- Member, School Committee for Beta Gamma Sigma, 2019–2022.
- Member, Undergraduate Commencement Committee, 2023–2025.
- Member, Departmental Ph.D. Committee, 2020–2021.
- Member, Departmental Faculty Search Committee for Professor-in-Residence, 2020.
- Member, Departmental Online Teaching Guidance Committee, 2020.
- Member, Departmental MIS Scholarship Committee, 2019–2020.

Student Support

- Mentor, Network for Enriched Mentorship Initiative, 2024–present.
- Judge, MEM Senior Design Demo Day, 2026.
- Judge, Undergraduate Capstone Presentations, 2026.
- Judge, UConn MIS Case Competition, 2019.
- Undergraduate Academic Advisor, 2019–present.
 - Number of advisees by year: 8 (2019), 20 (2020), 15 (2021), 19 (2022), 20 (2023), 24 (2024), 23 (2025).

Career Development Training

- Faculty Success Program, National Center for Faculty Development and Diversity, 2021.
- POMS Emerging Scholars Meeting, 2021.
- INFORMS New Faculty Colloquium, 2019.
- IISE Doctoral Colloquium, 2016.
- INFORMS Doctoral Colloquium, 2015.
- Teacher Development Program for Graduate Students, Lehigh University, 2012.

Professional Memberships

- INFORMS (Institute for Operations Research and the Management Sciences).
 - Health Applications Society (HAS).
 - Manufacturing & Service Operations Management Society (MSOM).
 - Service Science Section.
- POMS (Production and Operations Management Society).
 - College of Healthcare Operations Management (CHOM).