

Pengyi Shi

Mitchell E. Daniels, Jr. School of Business
Purdue University
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EDUCATION

- **Georgia Institute of Technology**, Atlanta, GA, August 2007 – December 2013
Ph.D. in Industrial Engineering (minor in Statistics)
Thesis title: “Stochastic modeling and decision making in two healthcare applications: inpatient flow management and pandemic response”
Advisors: Professors Jim Dai and Pinar Keskinocak
- **Peking University**, Beijing, China, September 2003 – June 2007
B.Eng in Applied Mathematics and Mechanics and B.A. in Economics (double major)

EMPLOYMENT AND AFFILIATION

- **Purdue University**, West Lafayette, IN
Associate Professor, Mitchell E. Daniels, Jr. School of Business, August 2021 – Present
Assistant Professor, Mitchell E. Daniels, Jr. School of Business, January 2014 – August 2021
Courtesy Affiliation with Regenstrief Center for Healthcare Engineering, July 2017 – Present
- **University of Chicago**, Chicago, IL
Visiting Scholar, Booth School of Business, October 2022 – December 2022 (sabbatical leave)

OPERATIONS MANAGEMENT PUBLICATIONS

‡ denotes industry/medical collaborator; underline denotes student

*denotes first author or co-first author in papers with more than three authors

- [P12]. J. Chen, J. Dong, **P. Shi** (2022). “Optimal Routing under Demand Surges: The Value of Future Arrival Rates.” *Operations Research*, forthcoming.
➤ Finalist, 2021 INFORMS Service Science IBM Best Student Paper Competition
- [P11]. Y. Pan, **P. Shi** (2023). “Refined Mean-Field Approximation for Discrete-Time Queueing Networks with Blocking.” *Naval Research Logistics*, forthcoming.
➤ Finalist, 2021 INFORMS Undergraduate OR Prize
- [P10]. **P. Shi***, J. Helm, C. Chen, J. Lim, R. Parker, T. Tinsley‡, J. Cecil‡ (2022). “Operations (Management) Warp Speed: Rapid Deployment of Hospital Predictive/Prescriptive Analytics for the COVID-19 Pandemic.” *POM* special issue on *Managing Pandemics: A POM Perspective*. doi/10.1111/poms.13648
- [P9]. J. Chen, J. Dong, **P. Shi** (2020). “A Survey on Skill-Based Routing with Applications to Service Operations Management.” *Queueing Systems*, (4):1-30.
- [P8]. **P. Shi***, J. Helm, S. Heese, A. Mitchell‡ (2021). “A Queueing Framework for Evaluating Adoption of New Diagnostic Tests.” *Production and Operations Management*, 30 (2), 330-354.
- [P7]. **P. Shi***, J. Helm, J. Deglise-Hawkinson‡, J. Pan‡ (2021). “Timing it Right: Balancing Inpatient Congestion versus Readmission Risk at Discharge.” *Operations Research*, 69 (6), 1842-1865.
➤ First place, MSOM Responsible Research in OM Award, INFORMS MSOM, 2021
➤ First place, Pierskalla Best Paper Award, INFORMS HAS, 2018

- Second place, CHOM Best Paper Award, POMS, 2019
 - Second place, Innovative Applications in Analytics Award, INFORMS Analytics, 2020
 - Selected for Healthcare SIG Presentation, MSOM, 2019
 - Selected for Showcase Presentation at CHOM Mini-Conference, POMS, 2019
 - Pilot implementation of the tool at a local hospital in Indiana
 - All-time (1997-2020) 11th Top Downloaded Paper on SSRN *OPER: Computational*
https://papers.ssrn.com/sol3/JELJOUR_Results.cfm?form_name=journalBrowse&journal_id=1091976&SortOrder=numHits%20desc
- [P6]. J. G. Dai, **P. Shi** (2021). “Recent Modeling and Analytical Advances in Hospital Inpatient Flow Management.” *Production and Operations Management*, 30 (6), 1838-1862.
- [P5]. A. Alaeddini, J. Helm, **P. Shi**, S. Faruqi (2019). “An Integrated Framework for Reducing Hospital Readmissions using Risk Trajectories Characterization and Discharge Timing Optimization.” *IIE Transactions on Healthcare Systems Engineering*, 9(2):172-185.
- [P4]. J. G. Dai, **P. Shi** (2019). “Inpatient Overflow: An Approximate Dynamic Programming Approach.” *Manufacturing & Service Operations Management*, 21(4):894-911.
- [P3]. J. Feng, **P. Shi** (2018). “Steady-state Diffusion Approximations for Discrete-time Queue in Hospital Inpatient Flow Management.” *Naval Research Logistics*, 65(1):26-65.
- Top 20 most read paper in Naval Research Logistics (2017-2018)
- [P2]. J. G. Dai, **P. Shi** (2017). “A Two-time-scale Approach to Time-varying Queues in Hospital Inpatient Flow Management.” *Operations Research*, 65(2):514-536.
- [P1]. **P. Shi***, M. Chou, J. G. Dai, D. Ding, and J. Sim[‡], (2016). “Models and Insights for Hospital Inpatient Operations: Time-Dependent ED Boarding Time.” *Management Science*, 62(1):1-28.
- <https://review.chicagobooth.edu/magazine/spring-2016/four-ways-to-make-hospitals-more-efficient>

OPERATIONS MANAGEMENT PAPERS UNDER REVIEW AND REVISION

[‡] denotes industry/medical collaborator; underline denotes student

*denotes first author or co-first author in papers with more than three authors

- [R7]. J. Helm*, **P. Shi***, M. Drewes[‡], J. Cecil[‡]. Delta Coverage: The Analytics Journey to Implement a Novel Nurse Deployment Solution.
- Selected as a finalist for INFORMS *Daniel H. Wagner Prize 2023*
 - Selected as a semi-finalist for INFORMS *Innovative Applications in Analytics Award 2023*
- [R6]. X. Chen*, **P. Shi***, S. Pu (2022). “Data-Pooling Reinforcement Learning for Personalized Healthcare Intervention.” Invited for resubmission at *Management Science*.
- [R5]. X. Gao, **P. Shi**, N. Kong (2023). “Stopping the Revolving Door: MDP-Based Decision Support for Community Corrections Placement.” To be submitted.
- First place, Outstanding Innovation in Service Systems Engineering Award, IISE, 2023
- [R4]. Y. Liu*, **P. Shi***, J. Helm, M. Van Oyen, L. Ying, Hucshka[‡] (2023). “An Integrated Approach to Improving Itinerary Completion in Coordinated Care Networks.” Major revision at *Manufacturing & Service Operations Management*.
- [R3]. J. Dong*, **P. Shi***, F. Zheng*, J. Xin[‡] (2022). “Structural Estimation of Load Balancing Behavior in Inpatient Ward Networks.” Under revision.
- [R2]. J. Dong*, **P. Shi***, F. Zheng*, J. Xin[‡] (2022). “Off-service Placement in Inpatient Ward Network: Resource Pooling versus Service Slowdown.” Preparing resubmission.
- Second place, CHOM Best Paper Award, POMS, 2020
 - Selected for Healthcare SIG Presentation, MSOM, 2019

- [R1]. X. Liu, B. Li, **P. Shi**, L. Ying (2022). “Online Routing in Service Operations with Stochastic Anytime Constraints: A Pessimistic-Optimistic Approach.” To be submitted.

PEER-REVIEWED CONFERENCE PUBLICATIONS AND WORKING PAPERS

‡denotes industry/medical collaborator; underline denotes student

*denotes first author or co-first author in papers with more than three authors

- [C9]. T. Li, C. Wu, **P. Shi**, X. Wang (2023). “Cumulative Difference Learning VAE for Time-Series with Temporally Correlated Inflow-Outflow.” Submitted to *AAAI 2024*.
- [C8]. B. Li, A. Castellanos, **P. Shi**, A. W. Ward (2023). “Combining Machine Learning and Queueing Theory for Data-driven Incarceration-Diversion Program Management.” Submitted to *IAAI 2024*.
- [C7]. Z. Zhang, **P. Shi**, A. W. Ward (2022). “Routing for Fairness and Efficiency in a Queueing Model with Reentry and Continuous Customer Classes.” *Proceedings of the 2022 American Control Conference (ACC)*.
- [C6]. T. Jang, H. Gao, **P. Shi**, X. Wang (2022). “Learning Fair Representation via Posterior Regularization.” Under review at *NeurIPS 2024*.
- [C5]. T. Jang, **P. Shi**, X. Wang (2022). “Group-Aware Threshold Adaptation for Fair Classification.”
- *Thirty-Sixth AAAI Conference* (acceptance rate: 15%)
- [C4]. X. Liu, B. Li, **P. Shi**, L. Ying (2021). “Online Resource Management: A Lyapunov Drift Approach.”
- *NeurIPS 2021* (acceptance rate: 26%)
 - *Selected for RLNQ 2021 Workshop*
- [C3]. X. Chen, **P. Shi**, X. Wang (2021). “Data Pooling for Reinforcement Learning with Applications to Healthcare Intervention.” *ICML RL4RL Workshop, Spotlight Talk* (acceptance rate 13%)
- [C2]. Y. Pan, Z. Xu, et al. **P. Shi**, H. Pan[‡], K. Yang[‡], S. Wu[‡] (2021). “A High-fidelity, Machine-learning Enhanced Queueing Network Simulation Model for Hospital Ultrasound Operations.” *Proceedings of the 2021 Winter Simulation Conference*.
- [C1]. I. Attari, P. Crain, **P. Shi**, J. Helm, N. Adams[‡] (2021). “A Simulation Analysis Of Analytics-driven Community-based Re-integration Programs.” *Proceedings of the 2021 Winter Simulation Conference*.

MEDICAL PUBLICATIONS

‡denotes industry/medical collaborator; underline denotes student

*denotes first author or co-first author in papers with more than three authors

- [M8]. X. Gao^{*}, S. Alam^{*}, **P. Shi**^{*}, F. Dexter, N. Kong (2023). “Interpretable Machine Learning Models to Predict Hospital Patient Readmissions.” Accepted at *BMC Medical Informatics and Decision Making*.
- [M7]. F. Dexter[‡], R. H. Epstein[‡], **P. Shi** (2021). “Proportions of Outpatients Discharged the Same or the Following Day are Sufficient Data to Guide the Assessment of the Cases.” *Cureus* 13 (3).
- [M6]. F. Dexter[‡], R. H. Epstein[‡], **P. Shi** (2020). “Forecasting the Probability That Patient Will Remain in the Hospital Overnight Versus Have a Length of Stay of 2 or More Days.” *Cureus* 12(10): e10847.
- [M5]. **P. Shi**^{*}, J. Yan^{*}, P. Keskinocak, A. L. Shane[‡], J. L. Swann (2020). “The Impact of Opening Dedicated Clinics on Disease Transmission during an Influenza Pandemic.” *PLoS ONE*¹, 15(8): e0236455.
- [M4]. **P. Shi**^{*}, F. Dexter[‡], R. H. Epstein[‡] (2016). “Comparing Policies for Case Scheduling within One Day of Surgery by Markov Chain Models.” *Anesthesia & Analgesia*², 122:526-538.
- [M3]. F. Dexter[‡], **P. Shi**, R. H. Epstein[‡] (2012). “Descriptive Study of Case Scheduling and Cancellations

¹ 2019 Impact Factor: 2.74

² 2019 Impact Factor: 4.31

within One Week of the Day of Surgery.” *Anesthesia & Analgesia*, 115(5):1188-1195.

[M2]. **P. Shi***, P. Keskinocak, J. L. Swann, B. Y. Lee[†] (2010). “The Impact of Mass Gatherings and Holiday Travelling on the Course of an Influenza Pandemic: A Computational Model.” *BMC Public Health*³, 10:778.

[M1]. **P. Shi***, P. Keskinocak, J. L. Swann, B. Y. Lee[†] (2010). “Modeling Seasonality and Viral Mutation to Predict the Course of an Influenza Pandemic,” *Epidemiology and Infection*⁴, 138(10):1472-1481.

WORK-IN-PROGRESS

†denotes industry/medical collaborator; underline denotes student

*denotes first author or co-first author in papers with more than three authors

[WP1]. T. Li, **P. Shi**. Learning Doubly-Stochastic Process for Staffing Optimization in Hospital Networks.

[WP2]. J. Sun, J. G. Dai, **P. Shi**. Proximal Policy Optimization for Routing in Queueing Networks: An Application to Inpatient Overflow Management.

[WP3]. X. Gao, G. Carter, **P. Shi**, N. Adams. Implementation of interpretable placement decision support in community corrections.

[WP4]. Z. Zhang, **P. Shi**, A. Ward. When Machine Learning Classifications Impact Incarceration-Diversion Decisions in Criminal Justice Systems: Admission Control in a Multi-Class Loss Model.

- Poster presentation at 2022 Stochastic Networks Conference

[WP5]. A. Braverman, W. Gu, **P. Shi**. Stein’s Method for High-dimensional Diffusion Approximation in Queueing Networks.

OTHER PUBLICATIONS

- H. Bastani, **P. Shi** (2020). “Proceed with Care: Integrating Predictive Analytics with Patient Decision-Making.” Invited book chapter for *Modeling for Health: Making Changes*.
- J. G. Dai, **P. Shi** (2015). “Technical Note for Discrete-Time Diffusion Approximations Motivated from Hospital Inpatient Flow Management.” *arXiv:1508.05148*
- **P. Shi***, J. G. Dai, D. Ding, J. Ang, M. Chou, X. Jin[†] and J. Sim[†] (2014). “Patient Flow from Emergency Department to Inpatient Wards: Empirical Observations from a Singaporean Hospital.” <http://dx.doi.org/10.2139/ssrn.2517050>
 - This is a 69-page document on a comprehensive empirical study of inpatient flow management

IMPLEMENTATION AND GRANT AWARDS

- Surge Planning for COVID19 Response at IU Health System
 - Led the Purdue/IUH workload prediction team on implementation in Spring 2020
 - Planning tools were dispatched to five service regions of IU Health in April 2020, covering 16 hospitals and serving more than one million Indiana residents
 - Findings were disseminated to Indiana Pandemic Information Collaborative, State Working Groups on COVID-19 response, Indiana Hospital Association
 - Received Purdue Alumni Gift Donation for research development
 - News release:
 - <https://www.purdue.edu/newsroom/releases/2020/Q2/krannert-and-kelley-business-schools-collaborating-to-help-iu-health-manage-surge-of-covid-19-patients.html>

³ 2019 Impact Factor: 2.52

⁴ 2019 Impact Factor: 2.15

- <https://www.idsnews.com/article/2020/04/kelley-krannert-partner-to-predict-hospital-ventilator-demand-surges>
- <https://team.myihealth.org/news/2020/06/scs-planning-for-a-potential-second-wave-kb>
- https://www.purdueexponent.org/city_state/article_323518b4-aa94-11ea-af87-336709c43d50.html
- “Delta Coverage”: A Novel Analytics-based Nurse Deployment Program
 - Co-led the academic team for state-wide resource nurse deployment innovation
 - Implementation started in October 2021 and pilot started in April 2023
 - 6-week pilot data shows more than 13% reduction in understaffing
 - Awarded with *2021 Krannert Ross-Lynn Postdoctoral Fellowship Grant (PI)*
 - Ongoing development and implementation for in-hospital nurse assignment
- Increasing Awareness of Algorithmic Fairness for Ethical Healthcare Decisions
 - Awarded with *2023 Blake Family Fund for Ethics, Leadership, and Governance funds (PI)*
 - Awarded with *2023 Engagement Scholarship Research/Creative Activities Grant (PI)*
 - Collaborating with IU Arnett hospital to investigate the current state of algorithmic fairness in clinical decision making and identify best practices to develop recommendations for increasing awareness of algorithmic fairness and promoting business ethics in healthcare
- A Community Approach for Racial Justice: Decision Analytics using Optimization and ML
 - Awarded with *2021 Engagement Scholarship Research/Creative Activities Grant (PI)*
 - Leading a team to help Tippecanoe County Sheriff’s Department and Community Corrections implement community intervention tools to reduce recidivism and substance relapses
 - Cost-effective analysis on case manager staffing used in townhall meeting for budget justification
- Data-driven Analytics for Youth Substance Abuse in DRC
 - Awarded with *2022-2023 Purdue Shah Family Global Innovation Lab Seed Grant Awards (PI)*
 - Collaboration with World Concern and local leadership to develop and implement a digital platform for data collection, visualization, and decision support to expand community-support programs for reducing substance abuse among youth in the Democratic Republic of the Congo (DRC)
 - News release: <https://www.purdue.edu/provost/about/newsletter/jun2022/story-seven.php>
- Data-driven Analytics for Community-based Violence Prevention Interventions
 - Collaboration with University of Chicago and Adult Redeploy to design data-driven methods to identify at-risk groups and intervene from the source, with *community-centered* and *equity-focused* as core missions
 - Preliminary proposal submitted to the *Violence Intervention Fund* Program at U Chicago
- High Fidelity Modeling and Two-Time-Scale Analysis for Hospital Inpatient Flow Management
 - Jointly conceptualized and written with Professor Jim Dai
 - Funded by NSF CMMI-1335724, 2013-2017

INVITED SEMINARS

- “Reducing Recidivism with Community-based Programs: Data-driven Analytics for Societal Benefits and Fairness”
 - 2023: Penn State, University of Wisconsin Madison, University of Miami, DePaul University
- “A New Era of Care Delivery: Machine Learning Enhanced Hospital Workload Prediction and Resource Allocation”
 - 2023: University of Toronto, Loyola University
 - 2022: Virginia Tech (virtual), Singapore Management School (virtual), University of California Irvine

- 2021: University College London (virtual), Krannert Research Colloquium
- “Data Pooling for Personalized Health Intervention”
 - 2022: University of Michigan, University of Alberta, Technical University of Munich – Heilbronn, Northwestern Kellogg, CUNY Baruch, Boston University
 - 2022 (virtual seminar): McGill University, Hong Kong University of Science and Technology
 - 2021 (virtual seminar): University of Macau, University of Toronto
- “Capacity Allocation to Improve Itinerary Completion in Healthcare Networks”
 - 2021 (virtual seminar): University of Chicago
 - 2020 (virtual seminar): University of Hong Kong, University of Chinese Academy of Sciences
 - 2020 (cancelled due to COVID19): McGill University, University of Toronto
- “Tackling the Curse of Dimensionality: ADP in Patient Flow Management”
 - 2020: Purdue (Department of Statistics)
- “Timing it Right: Balancing Inpatient Congestion versus Readmission Risk at Discharge”
 - 2020 (cancelled due to COVID19): North Carolina State, University of North Carolina
 - 2019: Georgia Institute of Technology, Johns Hopkins University
 - 2018: University of Hong Kong, Hong Kong University of Science and Technology, Indiana University-Bloomington, London Business School, CUHK-Shenzhen
- “Inpatient Overflow Policies: An Approximate Dynamic Programming Approach”
 - 2018: Shanghai Jiao Tong University, CUHK-Shenzhen, University of British Columbia
- “Steady-state Approximation for Discrete Queue in Hospital Inpatient Flow Management”
 - 2016: Purdue University (INFORMS Student Chapter)
- “A Two-time-scale Approach to Time-varying Queues for Hospital Inpatient Flow Management”
 - 2014: Chinese University of Hong Kong, National University of Singapore
- “Data-driven Modeling and Decisions for Hospital Inpatient Flow Management”
 - 2013: University of Southern California, Yale School of Management, University of Wisconsin Madison, Purdue (Krannert)

INVITED PANEL AND WORKSHOP DISCUSSION

- INFORMS 2023 Panel on Implementing OR/MS Research
- INFORMS 2022 New Faculty Colloquium – Building a Research Program and Publishing
- “Reducing Substance Use Disorders-related Recidivism with Community-based Programs: Data-driven Analytics for Fairness and Societal Benefits”
 - 2022 Canadian Healthcare Optimization Workshop (part of 2022 CORS/INFORMS International)
- POMS 2022 Emerging Scholars Program – Research Strategies Panel Discussant
- “Timing it Right: Balancing Inpatient Congestion versus Readmission Risk at Discharge”
 - 2018 Workshop on Service and Healthcare Operations, Shenzhen

CONFERENCE PRESENTATIONS

- “Machine Learning Enhanced Hospital Workload Prediction and Resource Allocation”
 - POMS 2022, 2023, MSOM 2022
- “Routing for Fairness and Efficiency in Criminal Justice System”
 - POMS 2022, 2023
- “Data Pooling for Personalized Health Intervention”
 - INFORMS Healthcare 2021; INFORMS 2021; POMS 2021, 2022
- “Proximal Policy Optimization for Routing in Inpatient Overflow Management.”

- INFORMS 2021
- “Capacity Allocation to Improve Itinerary Completion in Healthcare Networks”
 - INFORMS 2020; POMS 2021; MSOM 2021; INFORMS Healthcare 2021
- “Impact of Overflow on Inpatient Flow: An Econometric Study”
 - POMS 2019; INFORMS 2020
- “Balancing Inpatient Congestion versus Readmission Risk at Discharge”
 - IAAA Finalist Presentation, INFORMS Analytics 2020
 - POMS CHOM Showcase Presentation, 2019
 - INFORMS 2017, 2018, 2020; MSOM 2018; MSOM SIG 2019; APS 2019; POMS 2019
- “A Queueing Framework for Adoption of New Diagnostic Tests into Clinical Workflow”
 - MSOM 2019; INFORMS 2019
- “Inpatient Overflow: An Approximate Dynamic Programming Approach”
 - MSOM 2018; INFORMS 2019, 2017, 2016; INFORMS APS Conference, 2017; POMS 2017
- “Steady-state Approximation for Discrete Queue in Hospital Inpatient Flow Management”
 - INFORMS APS Conference 2017; POMS 2016; INFORMS 2015
- “Overflow Policies for ED Patients Awaiting Inpatient Beds”
 - POMS 2015; INFORMS 2014, 2013
 - HealthOPT Workshop, Chicago, IL, September 2014
- “A Two-time-scale Approach to Time-varying Queues for Hospital Inpatient Flow Management”
 - POMS International, 2014; MSOM 2014; POMS 2014, 2013; INFORMS 2012
- “Inpatient Flow Management in a Singaporean Hospital”
 - Applied Probability Seminar, Georgia Institute of Technology, February 2012
- “The Impact of Mass Gatherings and Holiday Travelling on the Course of an Influenza Pandemic”
 - INFORMS 2010; SMDM 2010 (20% acceptance rate for oral presentation)
- “Modeling Seasonality and Viral Mutation in the Course of an Influenza Pandemic”
 - INFORMS 2009

TEACHING EXPERIENCE

- Instructor for undergraduate and MBA core courses at Purdue
 - MGMT 361 *Operations Management* (online), Fall 2020
 - Developed a fully-online version in Summer 2020
 - Revamped classes materials, recorded videos, and designed online exercises and games
 - MGMT 660 *Introduction to Operations Management* (MBA core), 2017-2023
 - Instructor rating in Spring and Fall 2019: 4.8, 4.9, 4.9 (out of 5.0)
 - MGMT 361 *Operations Management* (undergrad core), Spring/Fall 2014, Spring 2015-2017
 - Instructor rating in Spring 2017: 4.8 (out of 5.0)
 - MGMT 690 *Doctoral Topics OM*, Spring 2019, Fall 2014
- Teaching assistant for undergraduate courses at Georgia Tech
 - ISyE 3232 *Stochastic Manufacturing Systems*, Summer 2008
 - ISyE 4803 *Advanced Stochastic Systems*, Spring 2008 and Fall 2009
- Guest lecture for undergraduate and graduate courses at Georgia Tech
 - HS 6000 *Introduction to Healthcare Delivery*, April 2011
 - BME 1300 *Problems in Biomedical Engineering*, November 2009
 - ISyE 4803 *Humanitarian Applications of OR/MS*, September 2009

STUDENT MENTORING

- PhD Students
 - Zhongjie Ma, Purdue University, 2016-2018; thesis committee
 - Graduated in December 2018; initial placement: Facebook
 - Yiqiu Liu, Arizona University, March 2019-May 2020; primary advisor for paper [R4]
 - Graduated in May 2020; initial placement: SAC Automation
 - Tianchun Li, Purdue University, 2021-present; primary advisor for paper [C8], [WP1]
 - Xiaoquan Gao, Purdue University, 2020-present; primary advisor for paper [R5], [M8], [WP3]
 - Zhiqiang Zhang, University of Chicago, 2021-present; co-advisor for paper [C7], [WP4]
 - Jingjing Sun, CUHK-Shenzhen, 2021-present; co-advisor for paper [WP2]
 - Jiekun Feng, Cornell University, 2016-2017; primary advisor for paper [P3]
 - Jinsheng Chen, Columbia University, 2019-2022; co-advisor for paper [R7], [P9]
- Undergraduate Students
 - Sabriya Alam and Parker Crain, Purdue University, 2019-2021; advisor for DURi project “Personalized Data Analytics to Combat Hospital Readmissions and Opioid Epidemics”
 - Zhiyao Xu and Asa Cutler, Purdue University, 2020; advisor for research project “Data Analytics for Inpatient Flow Management”
 - Second place, Purdue Undergraduate Research Conference (Krannert Track), 2020
 - Shikun Liu and Tianchun Li, Purdue University, 2020-2021; advisor for research project “Variational Auto-Encoding to Learn Doubly Stochastic Process”
 - Ben Wang and Shuwen Kan, Purdue University, 2020-2021; advisor for DURi project “Workload Prediction for COVID19 Response”
 - Yihan Pan, Zhenghang Xu, Xuanming Zhang, Jinjin Sun, CUHK Shenzhen, 2019-2021; advisor for “Outpatient Flow Optimization and Revisit Scheduling for Luohu Hospital”
 - Tianchun Li, Indira Brown, Yuvraj Mundhra, Eric Wu, Purdue University, 2021-2022; advisor for DURi project “Data Analytics for Hospital Operations and Opioid Epidemic”
 - Griffin Carter, Bingxuan Li, Purdue University, 2022-present; advisor for DURi project “Digital Platform Design for Resource-limited Countries”
 - Alexia Rodrigues, Alex Liu, Purdue University, 2022-present; advisor for DURi project “Geographical and Racial Disparities in Opioid Overdose and Crime in Indiana”

AWARDS AND HONORS

- Finalist, INFORMS Daniel H. Wagner Prize, 2023
- IISE Outstanding Innovation in Service Systems Engineering Award, 2023
- Blake Family Fund for Ethics, Leadership, and Governance Fund (PI), 2023-2024
- 2022 INFORMS Chicago Chapter Impactful O.R./Analytics Prize
- Shah Family Global Innovation Lab Seed Grant Awards, Purdue University (PI), 2022-2023
- Krannert STAR Supplement Research Fund, Purdue University (PI), 2022
- Selected into the first cohort of Societal Impact Fellows, Purdue University, 2021
- Engagement Scholarship Consortium Research/Creative Activities Grant Award (PI), 2021, 2023
- Krannert Ross-Lynn Postdoctoral Fellowship Competition Award (PI), 2021
- First place, MSOM Responsible Research in OM, INFORMS MSOM, 2021
- Received Purdue Alumni Gift Donation for COVID19 Research Development, 2020
- Second place, CHOM Best Paper Award, POMS, 2020
- Second place, Innovative Applications in Analytics Award, INFORMS Analytics Conference, 2020
- Second place, CHOM Best Paper Award, POMS, 2019

- First place, Pierskalla Best Paper Award, INFORMS HAS, 2018
- Krannert Young Faculty Scholar Award, Krannert School of Management, Purdue University, 2018
- Doug and Maria DeVos Faculty Support Award, Krannert, Purdue University, 2014
- PRF international travel grant, Purdue University, 2014 and 2016
- Master Outstanding and Distinguished Teachers, Krannert, Purdue University, 2017-2020
- Undergraduate Outstanding and Distinguished Teachers, Krannert, Purdue University, 2015-2017
- INFORMS Future Academician Doctoral Colloquium, Phoenix, AZ, 2012
- George Fellowship, Health System Institute, Georgia Tech, 2010-2011
- John Morris Fellowship, Department of Industrial and Systems Engineering, Georgia Tech, 2007-2009
- Chun-Tsung Scholar, sponsored by Nobel Laureate Tsung-Dao Lee, Peking University, 2005-2006
- Canon Grants for Elite Students, Peking University, 2005-2006
- China Economic Research Fellowship, Peking University, 2005-2006
- Dean's List for Excellent Study Grade, Peking University, 2003-2005

EDITORIAL EXPERIENCE

- Associate Editor:
 - *Operations Research (Stochastic Models Area)*: 2021 – present
 - *Health Care Management Science*: 2020 – present
 - *Service Science*: 2019 – present
 - *Manufacturing & Service Operations Management*: 2022 – present, guest AE
 - *Naval Research Logistics*: 2022, guest AE for special issue “*Developing Pandemic Preparedness Using Artificial Intelligence, Data Analytics, and Operations Research*”
 - *Decision Sciences*: 2020 – 2021
- Editorial Board: *Health Care Management Science*
- Reviewer for *Management Science, Operations Research, Manufacturing & Service Operations Management, Production and Operations Management, Stochastic Systems, Service Science, IIE Transactions, Naval Research Logistics, Health Care Management Science, European Journal of Operational Research, Interfaces, Performance Evaluation, Flexible Services and Manufacturing*
- Ad hoc reviewer, NSF CMMI panel, 2015
- Ad hoc reviewer, Canada New Frontiers in Research Fund, 2020

SERVICE

- Conference Organizing Committee
 - INFORMS Healthcare Conference (2021)
 - POMS College of Healthcare Operations Management Mini Conference (2020-2022)
- Track Chair/Co-chairs
 - INFORMS Healthcare Conference, Applied Probability cluster (2023)
 - INFORMS Annual Conference, Applied Probability track (2021)
 - POMS Annual Conference, Healthcare Operations Management track (2015, 2019)
 - INFORMS Annual Conference, MSOM/Healthcare SIG track (2016)
- MSOM 2022 Healthcare Special Interest Group Co-chairs
- Secretary for College of Healthcare Operations Management, POMS, 2019-2022
- Councilor for Applied Probability Society at INFORMS, 2021-2022
- Communications & Outreach Coordinator, Healthcare Application Society at INFORMS, 2021-2022
- Councilor for Healthcare Application Society at INFORMS, 2014-2016

- Session Chair
 - HAS Flash Job Talk Session (2021-2022)
 - INFORMS Annual Conference (2014, 2015, 2017-2023)
 - POMS Annual Conference (2014-2017, 2019-2023)
 - INFORMS APS Conference (2017, 2019, 2023)
 - INFORMS Healthcare Conference (2013, 2021, 2023)
- Competition Chair
 - INFORMS Pierskalla Best Paper Competition (2019)
- Judges
 - MSOM Responsible Research in OM Award Competition (2022)
 - INFORMS JFIG Paper Competition (2023)
 - INFORMS George Nicholson Student Paper Competition (2022, 2023)
 - INFORMS Applied Probability Society Best Student Paper Competition (2021, 2022)
 - INFORMS Undergraduate Operations Research Prize (2020, 2021)
 - INFORMS Seth Bonder Scholarship (2020, 2021)
 - INFORMS Pierskalla Best Paper Competition (2016-2017, 2021)
 - MSOM Best Student Paper Competition (2016-2023)
 - INFORMS Healthcare Conference Best Student Paper Competition (2015, 2017, 2021, 2023)
 - POMS College of Healthcare Operations Management Best Paper Competition (2014-2016, 2021-2022)
- Co-organizer, Research Colloquium on Substance Use Disorder Treatment, Krannert School of Management, April 2022
- Chair, Committee for Graduate Club, Krannert School of Management, September 2017 – 2018
- Online MBA Steering Committee, Krannert School of Management, 2018-2019
- Data/Analytics Research/Teaching Committee, Krannert School of Management, August 2018 – May 2020