

Wei Liu

Tenure-track Associate Professor
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Education & Employment

University of Science and Technology of China Tenure-track Associate Professor Department of Management Science, School of Management	Hefei, China July 2024 - Current
Purdue University Ross-Lynn Postdoctoral Fellow (with Fellowship) Supply Chain and Operations Management, Daniels School of Business	West Lafayette, IN July 2022 - June 2024
University of North Carolina at Chapel Hill Ph.D. Operations Research <i>Dissertation</i> : “Data-Driven Aircraft Assignment and Stochastic Models for Service Systems” <i>Advisors</i> : Professor Vinayak Deshpande and Professor Vidyadhar Kulkarni	Chapel Hill, NC August 2017 - May 2022
Tianjin University M.S. Management Science and Engineering <i>Dissertation</i> : “Decisions on Posted Price and Name-Your-Own-Price Opaque Selling Modes” <i>Advisor</i> : Professor Zhaofang Mao	Tianjin, China August 2014 –January 2017
Tiangong University B.S. Industrial Engineering	Tianjin, China September 2009 - July 2013

Research Interest

Data-driven resource allocation in real-world operations, including airline, healthcare, and service operations, to enhance network resilience and service level by using data-driven approach, optimization, queueing theory and stochastic modeling.

Publications

Wei Liu, and Vidyadhar G. Kulkarni (2024). Admission Control in Multi-server Systems Under Binary Reward Structure. *Production and Operations Management*, 33(7), 1457-1474.

Wei Liu, and Vidyadhar G. Kulkarni (2024). Patient Assignment and Prioritization for Multi-Stage Care with Reentrance. *Winter Simulation Conference*, 940-951.

Zhaofang Mao, **Wei Liu**, and Bo Feng (2019). Opaque distribution channels for service providers with asymmetric capacities: Posted-price mechanisms. *International Journal of Production Economics*, 215: 112-120.

Bo Feng, **Wei Liu**, and Zhaofang Mao (2018). Use of opaque sales channels in addition to traditional channels by service providers. *International Journal of Production Research*, 56(10): 3369-3383.

毛照昉, 冯博, **刘伟**, 李舸 (2018). 在线旅游平台混合不透明营销策略选择研究. *系统工程理论与实践*, 38(3): 655-664.

毛照昉, 董兆朝, **刘伟**, 李晓梅 (2017). 常规产品与新产品的预售与回购策略比较研究. *计算机集成制造系统*, 23(4): 867-873.

Working Papers

Data-Driven Aircraft Assignment to Minimize Delay Propagation, with Vinayak Deshpande and Vidyadhar Kulkarni.

Under Review at *Management Science*, 2025.

Joint Admission and Service Rate Control of an Unobservable Queue, with Vidyadhar Kulkarni.

Under Review at *Production and Operations Management*, 2025.

Mitigating Nurse Shortage via Inter-Hospital Nurse Transfers: A Data-Driven Multi-Stage Distributionally Robust Optimization Approach, with Tianchun Li, Mengshi Lu, and Pengyi Shi.

Working paper, under review at M&SOM, 2025.

Fairness-Constrained Workload Nurse-Patient Assignment: Incorporating Heterogeneous Patient Needs, with Mengshi Lu, and Pengyi Shi.

Work in Progress, 2025.

Teaching Experience

Supply Chain and Operations Management, Daniels School of Business, Purdue University, IN

Instructor

Operations Management

Spring 2024

Responsibilities:

Develop and deliver two weekly 75-minute lectures.

Assign the homework and project presentation, hold office hours, develop five quizzes, two midterms and one final exam.

Department of Statistics and Operations Research, University of North Carolina, Chapel Hill, NC

Instructor

Introduction to Data Models & Inference

Fall 2019, Spring, Summer I&II, Fall 2020

Decision Models for Business and Economics

Summer I 2020

Responsibilities:

Developed and delivered three weekly 50-minute lectures in Spring and Fall, and five weekly 90-minute lectures in the summer for undergraduate students (45 students).

Assigned the homework after each class, held office hours, developed two midterms and one final exam, and gave grade for each student.

Graduate Teaching Assistant

Introduction to Data Models & Inference	2019, 2021
Introduction to Management Science	2018, 2021
Advanced Optimization (graduate level)	2019
Introduction to Modeling and Analysis of Stochastic Systems	2018
Discrete Mathematics and Its Applications	2017, 2018

Responsibilities:

Held office hours, wrote homework and exam solutions, graded the homework and exam, and held review session before the exam.

Mentoring Experience

Mentor for Comprehensive Written Exams Summer 2019

Responsibilities:

Developed and delivered a one-hour review session every weekday for five courses (Stochastic Models in Operations Research I and II; Foundations of Optimization; Advanced Optimization; Simulation Modeling and Analysis) required for the qualified exam for the first year PhD students (6 students).

Wrote the solution for the previous exams, held one office hour every weekday and gave individual suggestion on how to prepare for the exam.

Pedagogical Training

Teaching Skills for International Teaching Assistants Spring 2018

Description: The course serves as an introduction to teaching skills. The course focuses on cross-cultural communication, English pronunciation, basic teaching skills, and topics necessary for effective interaction in classrooms in the United States.

Professional Activities

Conference Organization Organization of Sponsored/Invited Sessions

Session Chair for Disruption Risk Management in the Supply Chain Risk Management track at POMS Annual Meeting, Orlando, FL, May 2023.

Session Chair for Management of Service Systems in the Optimization under Uncertainty Track at INFORMS Annual Meeting, Indianapolis, IN, October 2022.

Session Chair for Management of Service Systems in the Applied Probability Track at INFORMS Annual Meeting, Anaheim, CA, October 2021.

Ad-hoc referee for

Production and Operations Management
European Journal of Operational Research
Health Care Management Science
Operations Research Letters

Professional Memberships

Member, INFORMS (Institute for Operations Research and the Management Sciences)
Member, INFORMS-AAS (Aviation Applications Section)
Member, INFORMS-M&SOM (Manufacturing and Service Operations Management)
Member, INFORMS-HAS (Health Applications Society)

Conference Presentation

Data-Driven Aircraft Assignment to Minimize Delay Propagation

Sponsored/Invited Session in Informs Annual Meeting, Phoenix, Arizona, October 2023

Sponsored/Invited Session in POMS Annual Meeting, Orlando, FL, May 2023.

AAS Best Student Presentation Competition in Informs Annual Meeting, Anaheim, CA, October 2021.

Sponsored/Invited Session in Informs Annual Meeting, Virtual, November 2020.

Mitigating Nurse Shortage via Inter-Hospital Nurse Transfers: A Data-Driven Multi-Stage Distributionally Robust Optimization Approach

Sponsored/Invited Session in Informs Annual Meeting, Phoenix, Arizona, October 2023

Joint Admission and Service Rate Control of an Unobservable Queue

Sponsored/Invited Session in Informs Annual Meeting, Indianapolis, IN, October 2022.

Joint Staffing and Admission Control Problem Under Different Levels of Information

Sponsored/Invited Session in Informs Annual Meeting, Anaheim, CA, October 2021.

Honors and Awards

Ross-Lynn Postdoctoral Fellowship (Purdue University) July 2022 to June 2024

SAMSI (The Statistical and Applied Mathematical Sciences Institute) Fellowship Spring 2022

RAJ Chandra Bose Graduate Student Travel Award (The University of North Carolina at Chapel Hill)
Fall 2021

Academic Scholarships (Tianjin University) 2014, 2015, 2016

China Undergraduate Mathematical Contest in Modeling, 2nd Prize at national level 2012

China Undergraduate Mathematical Contest in Modeling, 1st Prize at provincial level 2011

National Encouragement Scholarship (National level) 2010, 2011, 2012

Merit Student (Tiangong University) 2012

Outstanding Graduate (Tiangong University) 2012

Social Practice Scholarship (Tiangong University) 2011, 2012

Tianjin Innovation Scholarship (Provincial level) 2012

Computer Skills

MATLAB, R, Python, SAS, AMPL, Mathematica, Arena.