

Angela Lin

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EDUCATION

Massachusetts Institute of Technology, Cambridge, MA

2021 – 2026 (Expected)

Ph.D. in Operations Research

Advisor: Prof. Georgia Perakis

GPA: 5.0/5.0

Rice University, Houston, TX

2017 – 2021

B.A. in Computational and Applied Mathematics

Minor in Mathematics

GPA: 4.0/4.0

RESEARCH INTERESTS

Topics: Discrete and Combinatorial Optimization, Stochastic Optimization, Markov Decision Processes, Reinforcement Learning

Applications: Clinical Decision-Making, Hospital Operations, Public Health, Non-profit Operations, Disaster and Crisis Management

PUBLICATIONS AND WORKING PAPERS

1. **A Data-Driven, Interpretable, Risk-Aware Framework for Clinical Decision-Making Under Limited Resources**

Lien Le (M.D.), Angela Lin, Dessislava Pachamanova, Georgia Perakis, Omar Skali Lami. Under review at *Operations Research*

- Accepted for presentation at 2023 MSOM Main Conference
- Accepted for presentation at 2023 Society of Hospital Medicine Converge Conference

2. **Dynamic Resource Allocation for Healthcare Service Design: An Application to Geographic Cohorting**

Angela Lin, Dessislava Pachamanova, Georgia Perakis. Under review at *Service Science*

- Accepted for presentation at 2025 MSOM Main Conference
- Accepted for presentation at 2024 Society of Hospital Medicine Converge Conference

3. **Reinforcement Learning for Clinical Decision Support for Sepsis Treatment** (Case Study on Reinforcement Learning)

Angela Lin, Dessislava Pachamanova, Georgia Perakis. Under review at *INFORMS Transactions on Education*

- Finalist for 2025 INFORMS Case Competition

4. **Holistically Robust Markov Decision Processes for Clinical Decision-Making**

Gavin Findlay, Angela Lin, Dessislava Pachamanova, Georgia Perakis. Working paper. To be submitted to *Mathematical Programming*

5. **Data-Driven Decision Support for Sepsis Treatment: IV Fluid and Vasopressor Strategies**

Lien Le (M.D.), Angela Lin, Douglas McConnell (M.D.), Dessislava Pachamanova, Georgia Perakis, Adam Schwarz (M.D.).

Working paper. To be submitted to *Journal of American Medical Association*

SELECTED PRESENTATIONS AND TALKS

1. **Interpretable, Data-Driven Framework for Sepsis Treatment Decision Support**

- 2024 and 2025 *Data, Models, and Decisions* Executive MBA course at MIT Sloan
- 2025 MIT Sloan Visiting Committee
- 2024 Society of Hospital Medicine Converge Conference
- 2023 MSOM Conference
- 2023 INFORMS Healthcare Conference
- 2023 INFORMS Annual Meeting
- 2022 MIT MGB AI Cures Conference

2. **Online Optimization of Patient-Physician Assignments for Geographic Cohorting**

- 2025 INFORMS Annual Meeting
- 2025 MSOM Conference
- 2025 Society of Hospital Medicine Converge Conference

3. **Holistically Robust Markov Decision Processes for Clinical Treatment Decisions**

- 2024 INFORMS Annual Meeting

HONORS AND AWARDS

- INFORMS 2025 Case Competition Finalist** October 2025
Finalist (3 out of 27) for best teaching case at Institute for Operations Research and Management Science (INFORMS) conference
- MIT Health and Life Sciences Graduate Fellowship** August 2025
1 of 32 fellows (selected out of 222) awarded support for 2025-2026 academic year for interdisciplinary research in health sciences
- National Science Foundation Graduate Research Fellowship Program Honorable Mention** March 2023
Honorable mention for fellowship recognizing outstanding STEM graduate students in the United States
- MIT-Google Innovations in Computing Fellowship** September 2022
Selected as a fellow for full PhD support for 2022-2023 academic year by Google and MIT Schwarzman College of Computing
- MIT Operations Research Center Common Experience Best Presentation** August 2022
Best presentation for Operations Research first-year PhD qualifying project
- INFORMS Undergraduate Scholarship for 2019 Annual Meeting** August 2019
\$1,250 award from the Institute for Operations Research and Management Sciences (INFORMS) to attend annual conference

TEACHING EXPERIENCE

- Teaching Assistant, MIT Sloan School of Management** Spring 2024, Spring 2025
Data, Models, and Decisions (15.730); Student evaluation rating: 6.73/7, 6.67/7
- Taught recitations, redesigned course lectures, held office hours
 - Presented research and case study during two separate lectures
- Grader, Rice University Computational and Applied Math Department** Fall 2019
Introduction to Operations Research and Optimization (CAAM 378)
- Held weekly office hours for homework questions and graded homework, projects and exams
- Teaching Assistant, Rice University Biology Department** Fall 2018
Introductory Biology (BIOC 201)
- Led weekly review sessions to help students gain deeper understanding of class topics

INDUSTRY EXPERIENCE

- Advanced Analytics Intern, Tampa General Hospital** June 2024 – September 2025
- Built optimization model backend as well as user interface for provider regionalization patient assignment tool through iterative collaborative process between data science team and hospitalists (end users of the tool)
 - Reduced physician travel time by 75% and manual assignment time by 300% through successful implementation of patient assignment tool
 - Leveraged queueing theory to make bed capacity recommendations for the hospital
- Business Analyst Intern, Capital One** June 2020 – August 2020
- Queried and analyzed data to make business recommendations regarding customer strategy for Loss Mitigation department
 - Increased recoveries from Total Loss customers by \$800K annually by finding the optimal number of calls to each segment of customers and redesigning outbound call strategy
- Logistics Engineering Intern, Daikin** May 2019 – August 2019
- Reduced annual freight costs by over \$100K by designing new “picking” schedule, implementing pooled distribution, and launching bidding process on the company’s Transportation Management System

OTHER RESEARCH PROJECTS

- Continuous Optimal Decision Trees** August 2021 – August 2023
- Investigate a novel global optimization formulation for soft-splitting regression decision tree
 - Reformulate or approximate global optimization formulation as a convex or otherwise tractable problem
 - Develop greedy algorithm to find a local optimal solution for continuous optimal regression decision tree
- Optimal Decision Trees with Monotonic Predictions** August 2021 – May 2022
- Formulated and added constraints to discrete integer optimization formulation for decision regression tree that enforce monotonic predictions with respect to a subset of features, resulting in decision tree with improved fairness and interpretability

Fixed-Charge Network Flow

April 2020 – May 2021

- Abstracted the liver transplant allocation problem as a generalized variation of the fixed-charge network flow problem
- Derived valid inequalities for the generalized fixed-charge network flow problem

Liver Transplant Allocation Policy

January 2019 – April 2020

- Assessed possible effects of a newly proposed policy for allocating liver donations by collecting and analyzing data
- Formulated Integer Programs (IP) seeking the optimal radius for organ-sharing to attain maximal fairness

SERVICE AND OUTREACH

Resources for Easing Friction and Stress, Operations Research Center, MIT

August 2022 – Present

- Provide confidential peer-to-peer counseling and support for fellow students in department
- Organize professional, academic, health and holistic wellness-centered events for department

MIT Highschool Summer Program Volunteer Teacher, MIT

July 2022 – August 2022

- Designed and taught a 6-week summer course to highschoolers on equity and inclusivity in healthcare

Community Bridges Fellow, Kinder Institute for Urban Research, Rice University

August 2020 – May 2021

- Partnered with YMCA South Texas Office for Refugees to analyze data on outcomes of refugee resettlement

Academic Mentor, Wiess College, Rice University

March 2020 – May 2021

- Held office hours, review sessions, and individual tutoring sessions for introductory math and computer science classes

Alternative Spring Break Participant, Rice University

November 2019 – May 2020

- Studied factors contributing to K-12 educational inequity for a semester and spent a week immersed in community-engagement and hands-on learning about the K-12 education system in Houston and Austin, Texas

Eco Committee Member, Wiess College, Rice University

August 2019 – May 2020

- Organized and brainstormed green initiatives for Wiess College at weekly committee meetings

Partners for Advancement of Immersion of Refugees Volunteer, Rice University

August 2017 – April 2019

- Visited middle schools to lead afterschool educational activities for refugee youth once per week

ADDITIONAL INFORMATION

Programming skills: Python, Julia, MATLAB, SQL, R, JuMP, Gurobi, LaTeX**Languages:** English (native), Mandarin Chinese (proficient)