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 MDPs for Clinical Treatment Decisions**
   - 2024 INFORMS Annual Meeting

HONORS AND AWARDS

INFORMS 2025 Best 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 Schwarzman College of 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

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

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

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)