

# Angela Lin

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## EDUCATION

**Massachusetts Institute of Technology**, Cambridge, MA  
Ph.D. in Operations Research  
Advisor: Prof. Georgia Perakis  
GPA: 5.0/5.0

2021 – 2026 (Expected)

**Rice University**, Houston, TX  
B.A. in Computational and Applied Mathematics  
Minor in Mathematics  
GPA: 4.0/4.0

2017 – 2021

## 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

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

## TEACHING EXPERIENCE

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

## INDUSTRY EXPERIENCE

<b>Advanced Analytics Intern</b> , 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	
<b>Business Analyst Intern</b> , 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	
<b>Logistics Engineering Intern</b> , 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

<b>Continuous Optimal Decision Trees</b>	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	
<b>Optimal Decision Trees with Monotonic Predictions</b>	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

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**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

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