

# Angela Lin

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## EDUCATION

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**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

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**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

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- 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
- 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
- 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
- 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*
- 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

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- 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
- Online Optimization of Patient-Physician Assignments for Geographic Cohorting**
  - 2025 INFORMS Annual Meeting
  - 2025 MSOM Conference
  - 2025 Society of Hospital Medicine Converge Conference
- 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**

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**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**

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