**Madeleine Pollack***pollmm.github.io*

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**Operations Research Center**

Massachusetts Institute of Technology

77 Massachusetts Avenue, E40-103  
Cambridge, MA 02139  
Office Phone: (617) 253-3601

**Education**

**Massachusetts Institute of Technology,** Cambridge, MA

Candidate for **PhD** in Operations Research; expected completion, **JUNE 2028**. GPA: **4.5/5.0**

Advisor: **Swati Gupta**

**Georgia Institute of Technology,** Atlanta, GA

**B.S.** Industrial and Systems Engineering; **May 2023**. GPA: **4.0/4.0**  
 **Highest Honors, College of Engineering Honor Graduate**

**Research Experience**

**2023–Present** **Massachusetts Institute of Technology**, Cambridge, MA

*Graduate Research Assistant**Advisor*: Prof. Swati Gupta

*Projects*: **(1)** Multi-armed bandits with reviewers, with calibration for reviewer quality, to guide human-AI collaboration, **(2)** AI/ML to minimize deceased organ non-utilization, and improve equity in the kidney allocation process, **(3)** Analyzing policy proposals for safe and progressive use of AI in infrastructure investments, and more, **presented at INFORMS 2024**.

**2022-2023** **Georgia Institute of Technology**, Atlanta, GA

*Undergraduate Research Assistant**Supervisors*: Prof. Swati Gupta and Prof. Daniel Molzahn

*Project*: Optimizing infrastructure investment decisions for powerline undergrounding to prevent power loss, decrease wildfire risk, and ensure equitable benefit across socioeconomic groups, **presented at INFORMS 2023**

**2020-2023** **Georgia Institute of Technology**, Atlanta, GA

*Undergraduate Research Assistant**Supervisors*: Prof. Lauren Steimle (2020-2022)

*Project*: Optimal aggregation of the state spaces of Markov Decision Processes to balance the trade-off between precision of state space definition and the accuracy of estimated transition probabilities to maximize infinite-horizon reward **(Presented at IISE 2022, INFORMS 2022**).

**Teaching Experience**

**2023-Present** **Blended Learning**, Cambridge, MA

*Project Lead* for *Operations Management and Supply Chain Analytics*course

I teach weekly seminar-style classes on network optimization, business analytics, and optimization software skills to Chinese high school students.

**Preprints**

1. 2024, “*Equitably allocating wildfire resilience investments for power grids: The curse of aggregation and vulnerability indices*”, <https://arxiv.org/abs/2404.11520>, with **Ryan Piansky, Swati Gupta, Alyssa Kody, and Dan Molzahn.**
   1. Submitted to Applied Energy
2. 2024, “*The implications of state aggregation in deteriorating Markov Decision Processes with optimal threshold policies*”, <https://arxiv.org/abs/2405.12912>, with **Lauren N. Steimle**.
   1. Major revision at Computers & OR

**Work Experience**

**2022**  **Tesla Motors**, Fremont, CA

(Fall) *Industrial Engineering Intern*

* Developed headcount recommendations, saving Tesla $12.5 million annually.
* Designed user-friendly interfaces for data access, including dashboards and web applications.
* Built Multiple Linear Regression and Markov Decision Process models to support data-driven decision-making.

**2021**  **Hermeus Corporation**, Atlanta, GA

(Fall) *Flight Sciences Engineering Intern*

* Developed Python tools to enhance data analysis efficiency, including an optimizer script to maximize total efficiency for a given target Mach number and angle of elevation.
* Created a “deck merger tool” to combine data from multiple sources with varying fidelities into a single, consolidated spreadsheet.
* Designed data visualization scripts for vehicle performance, as well as scripts for sensitivity analyses and implementing Machine Learning algorithms.

**2021**  **Space Capital,** New York, NY

(Summer) *Brooke Owens Fellow, Venture Capital Intern*

* Actively involved in deal sourcing and participated in founder introductions with prospective portfolio companies.
* Attended two weekly deal flow meetings to discuss the candidacy of sourced companies.
* Contributed to writing three content pieces on early-stage investment methodology, best practices for founders hiring their first twenty employees, and a research report on the state and direction of the InsurTech sector.

**Honors and Awards**

**2023-2024** **Henry Gabbay Fellowship**

Awarded to one promising incoming first-year ORC student each year

**2023** **Institute of Industrial & Systems Engineering (IISE) National Capstone 1st Place**

(Spring) 1st place national capstone award for our supplier selection decision-support tool utilizing Thompson sampling frameworks for supplier recommendations.

**2023** **Davidson Family Tau Beta Pi Award**

(Spring) Awarded to best graduate in the School of Engineering (comprising 11 majors) at Georgia Tech

**2022** **Adobe Women in Technology Scholarship**

(Spring) $10,000 scholarship awarded to 10 women nationally for demonstrated skills in computing fields

**2021-2023** **Georgia Tech IISE Awards**

(Spring) - Best 2nd or 3rd year student in the Industrial Engineering major (2021)

* Best undergraduate researcher in the Industrial Engineering major (2022)
* Best display of leadership in the GT Industrial Engineering department (2023)
* Best graduating senior student in the Industrial Engineering major (2023)

**2021,2022** **Georgia Tech Undergraduate Research Awards**

(Spring) - 3rd place poster, School of Engineering (2021)

* 2nd place oral presentation, School of Engineering (2022)

**2021,2022** **Society of Women Engineers Undergraduate Research Competition Finalist**

(Fall) Awarded to top 5 women students based on their demonstrated research in engineering fields

**2021** **INFORMS Undergraduate Travel Scholarship**

(Fall) Competitive scholarship to attend the INFORMS Annual Meeting as an undergraduate student based on academic record, research experience, and demonstrated leadership in Operations Research communities.

**2021** **Brooke Owens Fellowship**

(Fall) Highly competitive fellowship program providing internships and mentorship in the aerospace field for women and gender-minority students

**2020** **Literature Media & Communications First Year Writing Award**

(Fall) Best first-year research composition (out of approximately 4,500 first-year students)

**Skills, Activities, and Citizenship**

**Software:** Julia, Python, R, Windows, Git

**Skills:** Project management, analytics, presentations, and cross-industry (venture capital, engineering,

tech, healthcare) and cross-academic (CS, engineering, business) communication

**Citizenship** Citizen of the United States