

# Meghan E. Meredith

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## EDUCATION

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### Georgia Institute of Technology

H. Milton Stewart School of Industrial and Systems Engineering

Ph.D. Operations Research

Advisor: Lauren N. Steimle

Thesis: Operations Research for Improved and Equitable Maternal Health

NSF Graduate Research Fellow

Atlanta, Georgia

2020 – 2025 (Expected)

### University of Wisconsin – Madison

College of Engineering

B.S. Industrial and Systems Engineering & Certificate in Global Health, GPA: 3.89/4.00

Madison, Wisconsin

2016 – 2020

## RESEARCH INTERESTS

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### Methodological Interests

Interpretable and fair mathematical modeling

Mixed-integer linear programming

Discrete choice modeling

### Application Interests

Healthcare systems: Maternal health, Access to care

Social care systems: Foster care, Forced labor

Policy impact

## HONORS

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### National Honors

- Southeast Regional Clinical & Translational Science Conference Outstanding Oral Presentation (2025)
- IISE Operations Research / Data Science 3-Minute Thesis Pitch Runner-Up (2024)
- P.E.O. Scholar Award Nominee (2023)
- National Science Foundation Graduate Research Fellowship (2022)
- INFORMS Minority Issues Forum Student Poster Competition Winner (2022)

### Graduate Honors, Georgia Institute of Technology

- Course Instructor Opinion Survey (CIOS) Honor Roll (2024)
  - Recognizes instructors for excellent teaching and acknowledges those who were widely praised by students for exhibiting care, respect, and enthusiasm, and for stimulating subject matter interest
- Chih Foundation Graduate Student Research Publication Award (2024)
  - Awarded to doctoral students whose research reflects innovation for the betterment of society
- PhD Mentoring Award (2023, 2024)
- The Evelyn Pennington UG Student Health and Wellness Award (2023)
- Student Speaker, closing remarks at Tech Square Phase III ground-breaking ceremony (2022)
- Master Modeler Competition (2022), 1<sup>st</sup> place among Georgia Tech teams
  - Created a model predicting the need for housing vouchers for youth aging out of foster care
- George Fellowship (2021, 2022)
  - Awarded in recognition of excellence in research in health systems and analytics

- Participant in the ISyE George Fellows Leadership Program
- Georgia Healthcare Information and Management Systems Society, David Cowan Scholarship (2021)
  - Awarded to promote the development of emerging leaders in health information technology
- Stewart Fellowship (2020)
- George Family Fellowship (2020)

### **Undergraduate Honors, University of Wisconsin - Madison**

- Dean's Honor List (2016 – 2020)
- William F. Vilas Merit Scholarship (2017 – 2020)
- Study Abroad: Community Development in Sri Lanka (2019)

## **PUBLICATIONS**

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### **Journal Articles**

**“The implications of using maternity care deserts to measure progress in access to obstetric care: A mixed-integer optimization analysis”** *BMC Health Services* (2024). <https://doi.org/10.1186/s12913-024-11135-4>

Meghan E. Meredith, Lauren N. Steimle, Stephanie M. Radke.

- Covered by Atlanta News First (Atlanta's local CBS television affiliate) segment “Georgia Tech researchers identify communities in need, ways to fix state's maternal mortality crisis”. October 18, 2024.
- Covered by the Georgia Tech Research News article “Expanding Access to Obstetric Care in Georgia: Challenges and Strategies” and highlighted in the Georgia Tech Daily. July 12, 2024.
- Awarded the 2024-2025 Chih Foundation Graduate Student Research Publication Award

**“Racial and Ethnic Differences in Maternal Pre-Pregnancy Conditions and Adverse Maternal Outcomes in the nuMoM2b Cohort”** *PLoS ONE* (2024). <https://doi.org/10.1371/journal.pone.0306206>

Meghan E. Meredith, Lauren N. Steimle, Kathryn K. Stanhope, Marissa H. Platner, Sheree L. Boulet.

### **Research Reports**

**“Forced Labor in Global Supply Chains: Trade Enforcement Impacts and Opportunities”** Santa Monica, CA: *RAND Corporation* (2025). Victoria A. Greenfield, Tobias Sytsma, Amanda Kerrigan, Maya Buenaventura, Karishma V. Patel, Max Steiner, Meghan E. Meredith, Andrew Scruggs, Lily Hoak, Kate Giglio, Daniel Hicks, and Jonathan W. Welburn.

**“Combating Forced Labor in Global Supply Chains: Is U.S. Trade Enforcement Making a Difference, and Can It Do More?”** *Homeland Security Operational Analysis Center operated by the RAND Corporation* (2025). Victoria A. Greenfield, Tobias Sytsma, Amanda Kerrigan, Maya Buenaventura, Karishma V. Patel, Max Steiner, Meghan E. Meredith, Andrew Scruggs, Lily Hoak, Kate Giglio, Daniel Hicks, and Jonathan W. Welburn.

### **Working Papers**

**“The Maximum Choice-Based Expectation Facility Location Problem”** To be submitted to *Manufacturing & Service Operations Management (M&SOM)*. Meghan E. Meredith, Lauren N. Steimle

## PRESENTATIONS

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### Conference Presentations

**“Identifying Regions that Are Vulnerable to Obstetric Unit Closures in Georgia Using Mathematical Optimization”** Co-authors: Meghan E. Meredith, Lauren N. Steimle

Southeast Regional Clinical Translational Science Conference, Pine Mountain, Georgia, March 2025.

*Outstanding Oral Presentation Award Winner*

**“Preventing Rural Obstetric Hospital Closures: A Multi-Level Optimization Approach”**

Co-authors: Meghan E. Meredith, Lauren N. Steimle.

INFORMS Annual Meeting, Seattle, WA, October 2024, Session Co-Chair.

**“Race-Neutral Calculator Still Disadvantages Black Patients”**

Co-authors: Amaya McNealey, Meghan E. Meredith, Gian-Gabriel P. Garcia, Lauren N. Steimle, Kathryn K. Stanhope, Marissa H. Platner, Sheree L. Boulet.

INFORMS Annual Meeting, Seattle, WA, October 2024. Presented by Amaya McNealey.

**“Exploring the Trade-Off Between Access and Volume in Obstetric Care: A Bilevel Optimization Framework”** Co-authors: Meghan E. Meredith, Lauren N. Steimle.

INFORMS Manufacturing and Service Operations Management Conference, Minneapolis, MN, July 2024.

**“Race-Blind Calculator Still Disadvantages Black Patients”**

Co-authors: Amaya McNealey, Meghan E. Meredith, Gian-Gabriel P. Garcia, Lauren N. Steimle, Kathryn K. Stanhope, Marissa H. Platner, Sheree L. Boulet.

Emerging Researchers National Conference in STEM, Washington D.C., March 2024. Graduate Oral Presentation in Data Science, Physiology, and Health (*Winner*). Presented by Amaya McNealey.

**“Multi-Criteria Optimization to Balance Quality and Access for Risk-Appropriate Maternity Care”**

Co-authors: Meghan E. Meredith, Lauren N. Steimle, Stephanie M. Radke.

INFORMS Annual Meeting, Phoenix, AZ, October 2023, Session Co-Chair.

**“Machine Learning to Estimate Risk of Adverse Maternal Outcomes in a Cohort of Nulliparous Women”**

Co-authors: Lauren N. Steimle, Meghan E. Meredith.

INFORMS Annual Meeting, Indianapolis, IN, October 2022. Presented by Lauren N. Steimle.

**“The Effectiveness of Remote and Hybrid Instruction as an Intervention for Covid-19 in University Settings”** Co-authors: Lauren N. Steimle, Jingyu Li, Meghan E. Meredith, Dima Nazzal.

INFORMS Annual Meeting, Anaheim, CA, October 2021. Presented by Lauren N. Steimle.

### Conference Posters

**“Data Science Models for the Prediction of Adverse Maternal Outcomes”**

Co-authors: Meghan E. Meredith, Lauren N. Steimle, Kathryn K. Stanhope, Marissa H. Platner, Sheree L. Boulet. INFORMS Annual Meeting, Indianapolis, IN, October 2022. Minority Issues Forum Student Poster Competition (*Winner*).

## “Evaluation of Two-Year Addiction Recovery Policing Initiative”

Co-authors: Veronica White, Meghan E. Meredith, Laura Albert. INFORMS Annual Meeting, Seattle, WA, October 2019. MIF Student Poster Competition.

### TEACHING EXPERIENCE

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#### Graduate Student Instructor

Georgia Tech School of Industrial and Systems Engineering  
ISYE 3133 – Engineering Optimization

- Course Instructor Opinion Survey (CIOS) Honor Roll

**Atlanta, Georgia**

Fall 2024

#### Tech to Teaching Certification, Foundation Level

Georgia Tech Center for Teaching and Learning

**Atlanta, Georgia**

Spring 2024

#### Teaching Assistant

Georgia Tech School of Industrial and Systems Engineering  
ISYE 6740 – Computational Data Analysis / Machine Learning I; Instructor: Dr. Yao Xie

**Atlanta, Georgia**

Summer 2021

### RESEARCH EXPERIENCE

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#### RAND Corporation

Summer Associate; PIs: Jonathan Welburn, Daniel Hicks  
Project: Impact of Forced Labor Policies on U.S. Business

**Santa Monica, CA**

May 2023 – August 2023

#### Quality & Safety Improvement Student Lab

Internal Consultant – UW Health

**Madison, Wisconsin**

September 2018 – May 2020

#### UW-Madison Department of Industrial and Systems Engineering

Undergraduate Research Assistant; Advisor: Dr. Laura Albert

**Madison, Wisconsin**

May 2019 – December 2019

### INDIVIDUAL STUDENT GUIDANCE

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#### M.S. Students

##### Graduated

- Hengyi Hu

Graduation: December 2022, Position after co-advising: IE PhD student, Northwestern University

##### In Progress

- Ayushi Goyal, Spring 2024
- Manikant Thatipalli, Spring 2024

#### Undergraduate Students

- Jahnavee Chakravarty, Fall 2024
- Julia Francois, Georgia Tech Summer Undergraduate Research in Engineering/Sciences (SURE) Program, Summer 2022

### PROFESSIONAL DEVELOPMENT

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- INFORMS Early Career Teachers' Network (ECTN) Workshop (2024)

- NextProf Nexus, Future Faculty Workshop (2024)
- WiscProf Future Faculty Workshop (2024)
- IISE Doctoral Colloquium, Georgia Tech Nominee (2024)
- INFORMS Doctoral Student Colloquium (2022)

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## PROFESSIONAL AFFILIATIONS

<b>Institute for Operations Research and the Management Sciences (INFORMS)</b>	2019 – Present
Health Applications Society	2021 – Present

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## TECHNICAL JOURNAL OR CONFERENCE REFEREE ACTIVITIES

BMC Health Services Research (2024)

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## LEADERSHIP & INVOLVEMENT

<b>INFORMS Healthcare Applications Society</b>	<b>Atlanta, Georgia</b>
Student Liaison	January 2024 – December 2024

<b>H. Milton Stewart School Bee Well Program</b>	<b>Atlanta, Georgia</b>
Ambassador	January 2023 – December 2024

<b>H. Milton Stewart School Graduate Student Advisory Council</b>	<b>Atlanta, Georgia</b>
Council Member	August 2022 – August 2024

<b>Northside Hospital Atlanta</b>	<b>Atlanta, Georgia</b>
Family Centered Care Volunteer	March 2022 – June 2023

- Volunteer four hours a week caring for newborn babies in the well-baby nursery by assisting physicians and nurses with physical exams and collecting vital signs

<b>K-12 InVenture Judge</b>	<b>Atlanta, Georgia</b>
Volunteer judge for Georgia K-12 inventions and entrepreneurship competition	March 2022

<b>A Just Brew</b>	<b>Madison, Wisconsin</b>
Director of Catering and Coffee Operations	September 2018 – May 2020

- Managed café operations for a nonprofit coffee shop that donated on average \$4,000 per semester to International Justice Mission, the largest international anti-human trafficking organization

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## GRADUATE COURSEWORK

Linear, Discrete, and Nonlinear Optimization  
 Stochastic Optimization  
 Stochastic Processes  
 Simulation  
 Simulation Optimization (Audited)  
 Predictive Modeling in Medical Decision-Making and Health Policy  
 Data Science for Epidemiology  
 Algorithmic Foundations of Ethical Machine Learning  
 Fundamentals of Teaching and Learning in Higher Education

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## TECHNICAL SKILLS

Python  
 R  
 C++  
 MATLAB

## **INDUSTRY EXPERIENCE**

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### **Epic Systems**

Student Assistant to Events & Design Team

**Verona, Wisconsin**

January 2018 – August 2018