

AMAYA MCNEALEY

☎ 205-861-5543 ✉ amcnealey3@gatech.edu 🔗 [linkedin.com/in/amaya-mcnealey-a90247170/](https://www.linkedin.com/in/amaya-mcnealey-a90247170/)

SUMMARY —

Ph.D. student developing data-driven methods to model complex healthcare and social systems. My research focuses on children in foster care, where I study how system-level factors such as placement instability, provider access, and treatment pathways influence mental health outcomes using large-scale Medicaid claims data. My work integrates longitudinal modeling, latent variable methods, and simulation to inform policy-relevant decision-making.

EDUCATION

Georgia Institute of Technology, Industrial and Systems Engineering

Ph.D. Industrial Engineering (Minor in Public Policy)

Expected Spring 2027

- Advisors: Jovan Julien, Nicoleta Serban, David Goldsman
- Research Interests: Healthcare systems modeling, fair and interpretable machine learning, simulation, and decision-making for Medicaid and foster care populations

M.S. Operations Research

May 2026

North Carolina A&T State University

B.S. Industrial and Systems Engineering, Summa Cum Laude

May 2022

- GPA: 3.85/4.00

PUBLICATIONS

Working Papers

- McNealey, Amaya, Simona Ivanov, Nicoleta Serban, and Jovan Julien. *ADHD Treatment Patterns Among Medicaid-Enrolled Preschool-Aged Children in Foster Care: A Multi-State Matched Analysis*. Under Review, 2026.
- McNealey, Amaya, Qingyang Cheng, Nancy Manares, Nicoleta Serban, and Jovan Julien. *GFPCA and Hidden Markov Models for Foster Care Trajectories*. In Preparation, 2025.
- McNealey, Amaya, Violet Cai, Daniel Kim, Vivek Inumella, Nicoleta Serban, and Jovan Julien. *Treatment Pathways for Suicidal Ideation*. In preparation for submission to *JAMA*, 2025.
- McNealey, Amaya, Yujia Xie, Nicoleta Serban, David Goldsman, Marie Plaisime, and Jovan Julien. *Patient–Provider Concordance Simulation*. Working Paper, 2025.

Journal Articles

- Soto, Esteban A., Andrea Hernandez-Guzman, Alexander Vizcarrondo-Ortega, Amaya McNealey, and Lisa B. Bosman. 2022. “Solar Energy Implementation for Health-Care Facilities in Developing and Underdeveloped Countries: Overview, Opportunities, and Challenges.” *Energies* 15(22): 8602. <https://doi.org/10.3390/en15228602>

Book Chapters

- McNealey, Amaya K., William J. Marrero, Lauren N. Steimle, and G.-G. Pablo Garcia. 2023. *Optimization Methods for Interpretable Treatment and Screening*. In *Encyclopedia of Optimization*. Springer, Cham.

RESEARCH EXPERIENCE

ADHD Treatment and Overprescription in Foster Care

2025–Present

- Evaluating adherence to clinical guidelines and identifying potential overreliance on pharmacologic treatment
- Quantifying polypharmacy, medication-only treatment, and delays in behavioral therapy using Medicaid claims data
- Analyzing treatment patterns before and after foster care entry to assess the impact of placement instability on care delivery
- Examining disparities across demographic and care contexts

Simulation of Pediatric Mental Health Access

2025–Present

- Developed a discrete-event simulation model capturing provider availability, patient demand, and system constraints
- Evaluated the impacts of workforce and policy scenarios on access, wait times, and unmet care needs
- Generated policy-relevant insights to inform healthcare system planning

Crisis Trajectories in Foster Care (GFPCA + HMM)

2025–Present

- Developed latent variable models to characterize evolving mental health risk from sparse longitudinal claims data
- Identified disparities in crisis progression and placement instability
- Estimated transition dynamics across latent risk states

Suicidal Ideation Risk in Medicaid Youth

2025–Present

- Conducting matched case–control analyses of treatment pathways preceding suicide-related outcomes
- Constructing longitudinal measures of treatment utilization and sequencing
- Examining patterns of psychosocial therapy, medication use, and emergency department utilization

Sequential Decision Models for Maternal Health

2024

- Developed a Markov Decision Process framework for delivery decisions under uncertainty
- Evaluated trade-offs across maternal outcomes and future pregnancy risks

LEADERSHIP & MENTORSHIP

Mentorship

- Mentor undergraduate and graduate students in developing reproducible data pipelines and conducting research in healthcare analytics using large-scale administrative data
- Provide guidance on data extraction, cleaning, modeling, and study design
- Mentees: Simona Ivanov, B.S. Computer Science (Expected Spring 2026); Nancy Manaresh, B.S. Industrial Engineering (Expected Spring 2027); Qingyang Cheng, M.S. Statistics (Expected Spring 2026); Meghna Mullangi, B.S. Industrial Engineering (Expected Spring 2029); Jaime Poza Moreno, M.S. Industrial Engineering (Expected 2027)

Professional Service & Outreach

2026–2027

- Staff Writer, OR/MS Tomorrow (INFORMS)
 - Contribute articles to a student-focused publication on operations research and analytics, highlighting emerging methods and applications
 - Communicate technical research topics to a broad audience of students and early-career professionals
- Selection Committee Member, Programs and Operations Manager Search, Center for Academic Success and Engagement, Georgia Institute of Technology

Georgia Tech Graduate Student Government Association

2024–2025

- Vice President of Student Life, representing graduate student interests and improving the graduate student experience
- Advocated for student wellbeing through initiatives focused on academic support and community building
- Served on committees related to student life, regulations, and international student affairs
- Collaborated with university leadership to inform policies affecting graduate education

TECHNICAL SKILLS

- **Programming:** Python, R, SQL
- **Data Engineering & Infrastructure:** Large-scale administrative claims data (Medicaid MAX, T-MSIS), SQL-based data extraction, cohort construction, and reproducible pipeline development
- **Statistical & Causal Methods:** Longitudinal data analysis, causal inference (matching, difference-in-differences), generalized functional PCA, hidden Markov models
- **Machine Learning:** Predictive modeling, interpretable and fair machine learning
- **Simulation & Decision Modeling:** Discrete-event simulation, Markov decision processes, healthcare systems modeling

AWARDS

Georgia Tech President's Fellowship

2022–Present

- Competitive institutional fellowship awarded to top incoming Ph.D. students (top 10% of applicants), recognizing exceptional academic achievement and research potential
- Provides multi-year support to enable early-stage research and accelerate progress toward the doctoral degree

George Fellow, ISYE

2023–2025

- Selected for the George Fellowship Program, which supports students focused on advancing healthcare systems and health outcomes through data-driven research
- Recognized for leadership and research contributions at the intersection of healthcare analytics, policy, and systems engineering

National Academy of Engineering Grand Challenges Scholar

2022

- Awarded for completing interdisciplinary work addressing engineering challenges with societal impact, integrating research, entrepreneurship, and global engagement

First Place, Data Science, Physiology, and Health Category

2024

- Emerging Researchers National Conference in STEM (ERN)
- Recognized for research contributions in healthcare data science and population health analytics

INFORMS Minority Issues Forum Poster Competition

2024

- Honorable Mention for research on algorithmic bias and equity in healthcare decision-making