

SHRIYA KARAM

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA, USA

Doctor of Philosophy, Operations Research

Advisor: Alexandre Jacquillat

Expected graduation: May 2028

University of Pennsylvania, Philadelphia, PA, USA

Bachelor of Science in Engineering, Systems Science and Engineering

Minors: Data Science, Mathematics

summa cum laude

May 2023

HONORS AND AWARDS

3rd Place in the Public Roads Student Writing Competition

Federal Highway Administration, January 2024

Dean's List 2022-2023

University of Pennsylvania, June 2023

Societal Impact Senior Project Award

University of Pennsylvania, April 2023

NSF Graduate Research Fellowship

National Science Foundation, March 2023

Sidney Shore Award

University of Pennsylvania, March 2023

Richard K. Dentel Memorial Prize in Urban Transportation

University of Pennsylvania, March 2023

Advancing Women in Engineering Jaros Baum & Bolles Award

University of Pennsylvania, February 2023

Top Ranked Masters' Dwight D. Eisenhower Transportation Fellowship Fellow

Dwight D. Eisenhower Transportation Fellowship Program, January 2023

Dwight D. Eisenhower Transportation Fellowship

Dwight D. Eisenhower Transportation Fellowship Program, December 2022

Dean's List 2021-2022

University of Pennsylvania, June 2022

WTS International Molitoris Leadership Scholarship for Undergraduates

Women's Transportation Seminar International, April 2022

Barry M. Goldwater Scholar

Barry Goldwater Scholarship and Excellence in Education Foundation, March 2022

WTS Philadelphia Chapter Suzanne Axworthy Undergraduate Scholarship

Women's Transportation Seminar Philadelphia Chapter, January 2022

3rd place Student Winner of the Martin Wachs Memorial Essay Contest

Eno Center for Transportation, December 2021

EMPLOYMENT

Massachusetts Institute of Technology, Cambridge, MA
Graduate Research Assistant, Operations Research Center

September 2023 – present

U.S. Department of Transportation, Washington D.C.
Intern, Office of the Secretary of Transportation

June 2023 – August 2023

University of Pennsylvania, Philadelphia, PA
Research Assistant, Center for Safe Mobility

May 2021 – May 2023

TEACHING

University of Pennsylvania, Philadelphia, PA

Teaching Assistant

Planning by Numbers

Intro to Dynamical Systems

Undergraduate Teaching Assistant Trainer

Massachusetts Institute of Technology, Cambridge, MA

Teaching Assistant

Optimization Methods

Universal AI (through MIT Open Learning)

Session Instructor

Computing for Optimization and Statistics (15.S60)

PUBLICATIONS

Journal Publications

Davidson, J., Nam, S.J., **Karam, S.**, Ryerson, M.S. (2025). Cycling in a crisis: Employing quasi-experimental designs to estimate the effects of provisional bicycle infrastructure. *Journal of Planning Education and Research*.

Karam, S., Ryerson, M.S., Kim, A.M., Li, M.Z. (2024). Autonomous Vehicle Impacts on Airport Leakage with Demand Forecasting and Environment Implications. *Transportation Research Part D: Transport and Environment*.

Karam, S. and Ryerson, M.S. (2023). Operating at the Individual Level: A review of literature and a research agenda to support needs-forward models of transport resource allocation. *Transportation Research Interdisciplinary Perspectives*.

Karam, S., Nam, S.J., Ryerson, M.S. (2022). AIMing for Equity in Measuring Aviation Accessibility: Development of the Aviation-accessibility Integrated Mobility (AIM) Metric. *Transportation Research Record*.

Davidson, J., Nam, S.J., **Karam, S.**, Koroma, F.K., Kim, E.M., Ryerson, M.S. (2022). New Equity Inputs to Prioritize Bikeshare Infrastructure Allocation: Learning from the Covid-19 Period. *Transportation Research Record*.

Journal Publications (Under review)

Delarue, A., Jacquillat, A., **Karam, S.**, Yan, J. (2025). Microtransit design: fixed-route, flexible, or both? *Under Review at Operations Research*.

Conference Papers (Peer-Reviewed)

Karam, S., Shanos, L., Ford, J., Castaneda, L., Ryerson, M.S., Vohra, R. (2023). The Development of the Reproductive Healthcare Equity Algorithm (RHEA). *Andrew P. Sage Memorial Capstone Competition*. **Honorable Mention for Best Paper in Systems Design Track.**

Karam, S., Nam, S.J., Ryerson, M.S. (2022). AIMing for Equity in Measuring Aviation Accessibility: Development of the Aviation-accessibility Integrated Mobility (AIM) Metric. *10th International Conference on Research in Air Transportation*.

PRESENTATIONS

Poster Presentation, “Integrating qualitative data into demand estimation for transit service design” 2025 MLxOR Workshop at the Annual Conference on Neural Information Processing Systems, Presented in December 2025.

Paper Presentation, “Integrating qualitative data into demand estimation for transit service design” 2025 INFORMS Annual Meeting, Presented in October 2025.

Paper Presentation, “Microtransit design: fixed-line transit, on-demand mobility, or both?,” *Triennial Symposium on Transportation Analysis XII*, Presented in June 2025.

Paper Presentation, “From tweets to decisions: leveraging natural language processing for optimization,” *INFORMS Computing Society Conference*, Presented in March 2025.

Paper Presentation, “Microtransit design: fixed-line transit, on-demand mobility, or both?,” 2024 INFORMS Annual Meeting, Presented in October 2024.

Poster Presentation, “Cycling in a crisis: Employing quasi-experimental designs to estimate the effects of provisional bicycle infrastructure,” 2024 Transportation Research Board Annual Meeting, Presented in January 2024.

Paper Presentation, “A Long Distance from AV-iation: Estimating the Impact of Automated Vehicle (AV) Adoption on Airport Leakage and Terminal Area Forecasts,” 2024 Transportation Research Board Annual Meeting Aviation Economics and Forecasting Committee Meeting, Presented in January 2024.

Paper Presentation, “A Long Distance from AV-iation: Estimating the Impact of Automated Vehicle (AV) Adoption on Airport Leakage and Terminal Area Forecasts,” 2023 INFORMS Annual Meeting, Presented in October 2023.

Paper Presentation, “Optimizing Transit Frequency for Airport Accessibility Maximization Based on Census Tract Vulnerability,” 2023 INFORMS Annual Meeting, Presented in October 2023.

Paper Presentation, “A Long Distance from AV-iation: Estimating the Impact of Automated Vehicle (AV) Adoption on Airport Leakage and Terminal Area Forecasts,” *INFORMS Transportation Science and Logistics (TSL) Society Conference*, Presented in July 2023.

Poster Presentation, “The Development of the Reproductive Healthcare Equity Algorithm (RHEA),” *Women’s Transportation Seminar International Annual Conference*, Presented in May 2023.

Paper Presentation, “The Development of the Reproductive Healthcare Equity Algorithm (RHEA),” *Andrew P. Sage Memorial Capstone Competition*, Presented in April 2023.

Paper Presentation, “Estimating airport leakage with connected and automated vehicle adoption,” *4th Symposium on Aviation Research*, Presented in March 2023.

Paper Presentation, “AIMing for Equity: Developing Individual-focused Equity Methods in Transportation,” *2023 Transportation Research Board Annual Meeting Eisenhower Fellowship Research Showcase*, January 2023.

Paper Presentation, “AIMing for Equity in Measuring Aviation Accessibility: Development of the Aviation-accessibility Integrated Mobility (AIM) Metric,” *10th International Conference on Research in Air Transportation*, June 2022.

Paper Presentation, “AIMing for Equity in Measuring Aviation Accessibility: Development of the Aviation-accessibility Integrated Mobility (AIM) Metric,” *2022 Transportation Research Board Annual Meeting Airport Terminals and Ground Access Committee Meeting*, January 2022.

Poster Presentation, “New Equity Inputs to Prioritize Bikeshare Infrastructure Allocation: Learning from the Covid-19 Period,” *2022 Transportation Research Board Annual Meeting Bicycle Committee Meeting*, January 2022.

INVITED TALKS

Microtransit design: fixed-line transit, on-demand mobility, or both?

Operations Research Center Student Seminar Series, Massachusetts Institute of Technology, October 2024

The Reproductive Healthcare Equity Algorithm

Laboratory for Air Transportation, Infrastructure, and Connected Environments (LATTICE), Department of Aerospace Engineering, University of Michigan, October 2024

Accessibility in Air Transportation: Methods to Measure and Enhance Equity and Accessibility in Aviation

University of Pennsylvania, February 2024

PROFESSIONAL AFFILIATIONS

Institute for Operations Research and the Management Sciences (INFORMS)

Student member, 2023 – present

Women’s Transportation Seminar (WTS)

Member, 2021 – present

Society of Women Engineers

Collegiate Member, 2019 – 2023

IEEE Eta Kappa Nu Honor Society

Lambda chapter, University of Pennsylvania, 2022 – 2023

SERVICE

Graduate Student Council (GSC)

DEI Committee Co-Chair, January 2024 - present

Transportation Research Board (TRB)

Program Committee, Young Members Council-Aviation, June 2023 – January 2024

SKILLS

Programming: R, Julia, Python, LATEX

REFERENCES

Megan S. Ryerson, Ph.D., UPS Chair of Transportation, Professor

Department of City and Regional Planning

Department of Electrical and Systems Engineering

University of Pennsylvania

mryerson@design.upenn.edu, +1 (215) 746-8236

Robert W. Ghrist, Ph.D., Andrea Mitchell University Professor

Department of Mathematics

Department of Electrical and Systems Engineering

University of Pennsylvania

ghrist@math.upenn.edu, +1 (215) 746-1929

Max Z. Li, Ph.D., Assistant Professor

Department of Aerospace Engineering

Department of Industrial and Operations Engineering

Department of Civil and Environmental Engineering

University of Michigan

maxzli@umich.edu, +1 (217) 419-5173

Laura D. Stubbs, Ph.D., Director of the Office of Diversity, Equity, and Inclusion

School of Engineering and Applied Science

University of Pennsylvania

lstubbs@seas.upenn.edu, +1 (267) 760-3688

Melissa King, Ph.D., Director of the Office of Innovation and Engagement

US Department of Transportation

Office of the Secretary of Transportation

melissa.king@dot.gov, +1 (607) 287-1546