

EDUCATION

Northwestern University

Ph.D. in Engineering Sciences and Applied Mathematics

Evanston, IL

2021–2026

Advisor: Diego Klabjan, Industrial Engineering and Management Sciences

California Institute of Technology

B.S. in Applied and Computational Mathematics

Pasadena, CA

2016–2020

RESEARCH INTERESTS

Machine learning, reinforcement learning, nonconvex optimization, stochastic optimization, gradient-based algorithms, AI safety, differential privacy, machine unlearning, low-rank training

PUBLICATIONS AND PREPRINTS

- [1] S. Mu and D. Klabjan, “On the finite-time convergence of LoRA”, *(in preparation)*, 2025.
- [2] S. Mu and D. Klabjan, “Descend or rewind? stochastic gradient descent unlearning”, 2025, [\[link\]](#). arXiv: [2511.15983 \[cs.LG\]](#).
- [3] S. Mu and D. Klabjan, “Rewind-to-delete: Certified machine unlearning for nonconvex functions”, *The Thirty-ninth Annual Conference on Neural Information Processing Systems*, 2025, [\[link\]](#), [\[ArXiv link\]](#).
- [4] S. Mu and D. Klabjan, “On the second-order convergence of biased policy gradient algorithms”, *Forty-first International Conference on Machine Learning*, 2024, [\[link\]](#).
- [5] M. Ahlers, M. Bustamante, and S. Mu, “Unitarity bounds of astrophysical neutrinos”, *Physical Review D*, vol. 98, no. 12, 2018, [\[link\]](#).

SKILLS

Python (PyTorch, TensorFlow, Numpy, Pandas), MATLAB, C, C++, SQL, high-performance computing, bash, Kubernetes, JavaScript, R

ADDITIONAL EXPERIENCE

Los Alamos National Laboratory

Cybersecurity Summer School Research Intern

Los Alamos, NM

Summer 2024

Mentor: Juston Moore

Out-of-distribution detection via neural tangent kernel methods

Nordstrom

Data Science Intern

Seattle, WA

Summer 2021

Combining prompt engineering with GPT-3 and UI/UX design to create a tool for generating clothing product descriptions

UCLA/Caltech	Pasadena, CA
Summer Undergraduate Research Fellowship	Summer 2020
Mentors: <i>Franca Hoffmann, Mason Porter, Heather Zinn-Brooks</i>	
<i>Utilizing mean-field approximations to model the effect of mixing patterns on disease spread</i>	
BlackRock	New York, NY
Summer Analyst (Portfolio Analytics Group)	Summer 2019
Niels Bohr Institute	Copenhagen, DNK
Summer Undergraduate Research Fellowship	Summer 2018
Mentors: <i>Markus Ahlers and Mauricio Bustamante</i>	
<i>Modeling astrophysical neutrino flavor oscillations based on new physics theories</i>	
NYU MRSEC	New York, NY
Research Experience for Undergraduates	Summer 2017
Mentor: <i>David Grier</i>	

TEACHING

- Advanced Algorithms for Machine Learning Fall 2024, Fall 2025
Developing slides and homework source code, office hours, grading, as the only full TA for a class of ~25 graduate students
Project topics: Policy Gradient, Deep Q-Networks, Federated Learning, Automated Feature Engineering
- Generating Business Value with Analytics Winter 2024
Grading for a class of ~20 graduate students
- Multi-variable Calculus Spring 2023
Leading lab sessions, office hours, grading, as one of 2 TAs for a class of ~80 undergraduate students
- Differential Equations Fall 2022
Leading lab sessions, office hours, grading, as one of 4 TAs for a class of ~100 undergraduate students
- Introduction to Probability Models (Caltech) Fall 2019
Office hours, grading, as one of 5 TAs for a class of ~100 undergraduate students

LEADERSHIP AND SERVICE

- Institute of Industrial and Systems Engineers (IISE) Annual Conference 2026
Modeling & Simulation Track Session Chair
- The Thirty-Ninth Annual Conference on Neural Information Processing Systems 2025
Reviewer
- Society for Industrial and Applied Mathematics (SIAM) Northwestern Student Chapter 2023–2025
President
Responsibilities: Organize meetings and events, coordinate payments, recruit members, recruit volunteers to help with events, interface with administration and other SIAM Chapters
Some events: Chicago Area SIAM Student Conference (CASSC25), Argonne National Laboratory Field Trip, collaborative events with INFORMS, weekly SIAM Journal Club, Undergrad Boba Networking
- Northwestern M.S. in Machine Learning and Data Science Program Winter 2025
Admissions application reviewer
- Northwestern Women in Mathematics (WIM) 2023–2025
Member

OTHER CONFERENCES

- INFORMS Annual Meeting in Atlanta, Georgia 2025
Invited talk: “Gradient-based methods for machine unlearning”
- SIAM Annual Meeting in Montreal, Canada 2025

AWARDS

- Northwestern Presidential Fellowship Nominee 2025
Sole nominee from the ESAM department
- SIAM Student Chapter Certificate of Recognition 2024
“Acknowledging Siqiao Mu for exceptional service to the Northwestern University Student Chapter during the 2023-2024 academic year”
- NSF Graduate Research Fellowship Program Honorable Mention 2023