Justin Le

justinle@utexas.edu Personal Website LinkedIn GitHub

Interests

Machine learning (neural networks), dynamical systems, statistics, and stochastic modeling

Employment History

2025 – Present **Teaching Assistant**, University of Texas at Austin

2024 – 2024 **Instructional Assistant / Grader**, Arizona State University

2022 – 2023 **Instructor,** Mathnasium

Education

2025 – 2030 **Ph.D, University of Texas at Austin**, Mathematics

2024 – 2025 **M.A, Arizona State University**, Mathematics
GPA: 4.0/4.0

2021 – 2024 **B.S, Arizona State University**, Mathematics (Honors)
Thesis title: *Diffusion Models to Alleviate Class Imbalance*
GPA: 4.0/4.0

Publications

1. J. Le, "Generative modeling with diffusion," *SIAM Undergraduate Research Online*, vol. 18, pp. 213–229, Jun. 2025. DOI: 10.1137/24S1717993.

2. F. Cao, K. Johnston, T. Laurent, J. Le, and S. Motsch, *Generative diffusion models from a pde perspective*, **submitted**. arXiv: 2501.17054.

Talks and Presentations

October 2025 "Neural Operators for Learning Mappings Between Function Spaces"
UT Austin Junior Analysis Seminar

November 2024 "Diffusion Models to Alleviate Class Imbalance"
ASU Undergraduate Honors Thesis Defense

Research Experience

2022 – 2025 **Undergraduate Research Assistant**, Arizona State University
Advisor: Dr. Sebastien Motsch

- First project: Designed, trained, and evaluated convolutional neural networks for semantic segmentation on a dataset of slime mold laboratory images. Computed the geometry of slime mold samples with the results from segmentation.
- Second project: Designed, trained, and evaluated diffusion models for synthesizing data. This synthetic data was then applied to a dataset of credit card transactions to improve a classifier's detection of credit card fraud.

Teaching Experience

2025 – Present	**Teaching Assistant**, University of Texas at Austin	
	Integral Calculus (two sections)	Fall 2025
2024 – 2024	**Instructional Assistant**, Arizona State University	
	Mathematics for Business Analysis	Fall 2024
	Calculus for Engineers II (two sections)	Summer 2024
	Mathematics for Business Analysis (two sections)	Summer 2024
	Discrete Mathematical Structures	Spring 2024

Awards

2024 **Dean's Medal (Arizona State University)** – Awarded to one graduating student in the mathematics/statistics department each semester to recognize academic achievement.

Moeur Award (Arizona State University) – Awarded to graduating students who maintain a 4.0 GPA throughout their undergrad.

Outreach and Service

2025-2026 Organized the Sophex seminar at UT Austin. This is a weekly seminar that allows first year math PhD students to practice giving talks.

2025 Mentored for the Directed Reading Program at UT Austin. I mentored Felix You on Statistical Inference using the textbook by Casella & Berger. This program culminated in Felix presenting on the Lehmann-Scheffé theorem.

Skills

Programming	Python, C/C++, Java, MATLAB, SQL, LaTeX
Data Science	PyTorch, Matplotlib, Pandas, MySQL
Computer	Bash (Linux), Git, PyCharm, VSCode