Justin Le

justinle@utexas.edu LinkedIn GitHub

Interests

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

Employment History

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.

Research Experience

2022 – 2025 **Undergraduate Research Assistant**, Arizona State University
Mentor: 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 Fall 2025

Teaching Experience (continued)

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.

Skills

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