

Tetsuto Nagashima

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EDUCATION

University of Southern California

Los Angeles, CA

M.S. Computer Science

Expected May 2027

- Trustworthy Machine Learning, Probabilistic and Generative Models, Online Optimization
- GPA: 4.00

M.S. Mechanical Engineering

May 2024

B.S. Physics/Computer Science

May 2024

B.A. Philosophy and Physics

May 2024

EXPERIENCE

Machine Learning Engineer

San Francisco, CA

Tetsuwan Scientific

March 2025 – May 2025

- Explored NLP techniques to translate scientific intent to executable machine code, blending LLMs for context-sensitive subtasks and rules-based models for deterministic subtasks.
- Prototyped a multimodal agent to convert labware blueprints into JSON definitions by combining OCR and LLMs to preserve spatial relationships of features.
- Designed and built a standardized CV dataset for liquid-class calibration: tuning pipetting parameters to eliminate undesirable symptoms and improve experimental reproducibility.
- Developed a YOLO labware classifier, diagnosed overfitting to deck backgrounds and lighting, and applied color jitter and rotations to enforce learning of true labware features.
- Concluded role early due to recurrence of a prior back injury

Undergraduate Research Assistant

Los Angeles, CA

USC Workshop on AI for Discovery in the Sciences

January 2024 – May 2024

- Developed and instructed an ML curriculum for 40 PhD students and professionals, utilizing Google Colab for cloud computing and GPU resources.
- Created and augmented a custom sunrise image dataset using a GoPro time-lapse to demonstrate nonlinear phase transition detection through the 'Learning by Confusion' method.
- Showcased a generative diffusion model, developed a custom UNet2DModel and pipeline, explored different noise schedulers, and trained classifiers to detect generated samples.

Software Engineering Intern

Torrance, CA

WWII Camp Wall Project

June 2023 – July 2023

- Engineered a scalable database using Alembic and SQLAlchemy, optimizing management of 125,000+ Japanese-American incarcerated records, resulting in a 22x search speed increase.
- Created data visualizations in Tableau, enhancing understanding of historical context by integrating datasets to compare populations with local demographics.
- Developed a name spacing algorithm and an HTML visualization to support architects' design analysis; took initiative in leading a team of 4 interns to organize systematic documentation.

Undergraduate Research Fellow

Mānoa, HI

University of Hawaii Institute for Astronomy REU Program

May 2021 – July 2021

- Modeled Antlia 2's orbit using Gaia EDR3 data, developing a custom stellar selection criterion based on stellar isochrones and proper motion measurements to isolate galaxy members.
- Applied Markov Chain Monte Carlo sampling to test if current proper motions of Antlia 2 could account for observed outer disc perturbations, improving understanding of galactic dynamics.
- Explored effects of dark matter profiles and dynamic friction using numerical orbit integration to evaluate if Antlia 2's proper motions aligned with criteria to induce outer disc disturbances.