Nandini Prasad

San Francisco Bay Area | www.nandiniprasad.me | Email
LinkedIn | GitHub | U.S. Citizen

Education

Columbia University, *New York, NY* Sep 2024 - Dec 2025
M.A. Statistics (Honors: Chair's List of Academic Achievement)

Dartmouth College, *Hanover, NH* Sep 2018 - Jun 2022
B.A. Data Science and Biology

Technical Skills

Languages: Python, SQL, R, JavaScript, Bash
ML & Deep Learning: PyTorch, PyTorch Lightning, JAX, Triton, HuggingFace, scikit-learn, XGBoost, NumPy, pandas
LLMs & GenAI: Agent Harnesses, RAG, LoRA, PEFT, Hugging Face Datasets, vLLM, LangChain, LlamaIndex
MLOps & Infrastructure: FastAPI, MLflow, Docker, Git, Linux, Databricks, PySpark, AWS, Azure, GCP
Modeling & Evaluation: Graph Neural Networks, Gaussian Graphical Models, Model Selection, Distributed Training, Quantization, Ablation Studies

Experience

Applied Materials Jan 2026 – Present
Data Scientist – AI/ML *Santa Clara, CA*

- Integrated DeepONet and NVIDIA PhysicsNeMo models into a production PyTorch Lightning surrogate-modeling framework, tracking experiments with MLflow on Databricks, to reduce semiconductor physics-solver workflows from roughly two days to few minutes.
- Adapted published geometric deep-learning architectures (MeshGraphNet, Transolver, DoMINO) for semiconductor chamber design — predicting a chamber's magnetic field from coil currents and frequency to improve wafer-level deposition uniformity, and predicting an etch-chamber lid's stress and displacement from its geometry to find the thinnest lid that maximizes RF coupling
- Built and deployed a production GenAI analytics application using FastAPI, Databricks Genie, and Azure OpenAI GPT to convert natural-language business questions into SQL-backed analytics and visualizations for inventory and service planning.
- Served 31 pilot users through initial deployment, with planned rollout to 800–1,000 business stakeholders.

Columbia University, Computer Science Department Sep 2025 – Dec 2025
Graduate Teaching Assistant *New York, NY*

- Debugged PyTorch implementations of distributed training and inference systems, GPipe, 1F1B pipeline parallelism, vLLM inference, and post-training quantization.
- Evaluated student projects on Agentic AI, ReAct, Model Context Protocol, and Direct Preference Optimization for Qwen and FLAN-T5 models, focusing on implementation correctness, evaluation quality, and reproducibility.

Lee Lab, Dartmouth Mathematics Department Mar 2022 – Feb 2024
Research Assistant *Hanover, NH*

- Developed a Hierarchical Neural Network in PyTorch to model Parkinson's disease progression from clinical data.
- Improved training efficiency by 33% over a standard neural network baseline using V-cycle and W-cycle multigrid methods.

Projects

PyGGM | *Python Library for Gaussian Graphical Models* Dec 2025

- Built and published to PyPI a scikit-learn-compatible library for precision matrix estimation, implementing Graphical Lasso with robust model selection criteria (StARS, EBIC) to infer conditional independence in high-dimensional data.
- Implemented Nonparanormal Copula transformers to extend Gaussian Graphical Models to non-Gaussian distributions.
- Designed a visualization module integrated with NetworkX for plotting stability paths and adjacency matrices.

GenGIF | *GIF Generation* June 2025

- Developed an automated prompt enhancement pipeline (GPT-4o) that translates abstract user intent into technical style descriptors, reducing generation artifacts and improving instruction following.
- Deployed the 14B-parameter Wan 2.1 diffusion model into a cloud-based inference pipeline, conducting a parameter sensitivity analysis on resolution and guidance scales to optimize the trade-off between visual fidelity and generation latency.

Focus Roast | *AI Productivity Coach* Feb 2025

- Created a React and Flask-based productivity app that monitors user screen and webcam feeds, providing real-time motivational feedback with celebrity-inspired voices upon detecting procrastination.
- Integrated Llama 90B vision model to analyze captured images, leveraging DeepSeek R1 for procrastination detection.

Interests

Hiking, Birding, Bharatanatyam, Ikebana