Dustin Nguyen

dnguyen.phys@gmail.com | dustindnguyen.github.io | linkedin.com/dustinnguyen24

Summary

AI/ML Scientist with Physics PhD and 2+ years deploying ML systems in production across defense and research sectors. Expertise in PyTorch, production MLOps, and model R&D and deployment.

Technical Skills

Languages & Frameworks: Python, PyTorch, Ray, Transformers, Hugging Face, scikit-learn, numpy, pandas
GenAI/LLMs: LLMs, RAG Systems, Langchain, Vector Databases, Fine-tuning
MLOps & Engineering: Git, Docker, Mlflow, Unit Testing
Cloud & Data: AWS EC2 and S3, Data pipelines, Distributed Computing
Research: SciML (Neural ODEs and variants), Time-series models, Transformers

Experience

Senior Machine Learning Research Scientist, Leidos – Remote, USA Mar 2025 – Present

- Built Transformer-based surrogate model for DARPA Space Situational Awareness program achieving 3+ orders of magnitude speedup over physics-based algorithms; owned end-to-end ML pipeline including experiment tracking (MLflow) and production deployment; contributed to graph motif-based feature extraction design.
- Developed internal Python packages with automated CI/CD pipelines and private PyPI distribution for IARPA remote-sensing program; improved logistic regression model performance for chemical aerosol detection and resolved production bottlenecks.

Senior Machine Learning Engineer, Lockheed Martin – Denver, CO Mar 2024 – Mar 2025

- Led Python model development for a DARPA project deploying Controlled Neural ODEs as surrogate models in AFSIM simulations. Scaled distributed training with PyTorch Lightning across multi-GPU systems and integrated models into AFSIM's C++ environment using LibTorch. Delivered quantitative results and analyses to government stakeholders through monthly SharePoint presentations.
- Developed multi-modal AI/ML method for a classification task. Utilized Meta's data2vec2.0 pre-trained model.

Post-doctoral Researcher, Ohio State University – Columbus, OH Dec 2023 – Mar 2024

- Conducted studies using GPU-accelerated multi-dimensional hydrodynamics simulations.

Applied Machine Learning Fellow, Los Alamos National Laboratory – Los Alamos, NM May 2022 – Aug 2022

- Researched and developed Neural ODEs as a surrogate model for non-linear physics using Julia language.

Graduate Researcher & NASA FINESST Fellow, Ohio State University – Columbus, OH Aug 2020 – Dec 2023

- Studied idealized galactic feedback models, which is relevant to understanding galaxy evolution, using theoretical and computational methods. Total of 10 published papers, with 6 being first author.
- Awarded competitive NASA FINESST Fellowship (acceptance rate $\sim$8%) for proposed research

Projects

Universal Differential Equations for learning non-linear physics

- Developed the first use case of Neural ODEs (UDEs) within idealized galactic feedback models using Julia.
- Published proof-of-concept model into ICML 2023 Workshop on ML for Astrophysics.
- Applied model to real-world data and published into NeurIPS 2023 Workshop on ML and the Physical Sciences.

Courses

DeepLearning.ai

- Retrieval Augmented Generation (RAG): Search, Vector Databases, etc. (Course Certificate, 2025)
- Agentic AI: Multi-agent Workflows, Tools, Code Execution, Reflection, Evaluation (Course Certificate, 2025)
- Machine Learning Specialization (Professional Certificate, 2023)

Education

Ohio State University – PhD in Physics Dec 2023
Ohio State University – MS in Physics May 2021
Arizona State University – BSs in Physics and Astrophysics May 2018