





# Dustin Nguyen

+1-(480)-823-8799 •  (dnguyen.phys@gmail.com) •  •  •  • [Google Scholar](#)

**Summary:** Experienced AI/ML Scientist with a background in computational astrophysics (Physics PhD).

## Work Experience

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### Leidos

Remote, USA

▷ Senior Machine Learning Research Scientist

03/2025 - Present

- Solutioning for various capture efforts at Leidos Innovation Center (LIInC). Primarily focused on proposing novel SciML/Physics-Informed architectures towards problems in National Security.
- Technical contributor for a DARPA program using Graph ML for Space Situational Awareness tasks... Led development of time-series AI/ML-based surrogate that is >1000 times faster than the traditional physics-based algorithm. More details to come.
- Technical Contributor for an IARPA program for remote-sensing detection of chemical aerosols. Built and maintained internal Python packages with automated CI/CD workflows for testing, versioning, and deployment to a private PyPI server. Contributed to model development and provided solutions to existing problems with the logistic regression model.

### Lockheed Martin

Denver, CO

▷ Senior Machine Learning Engineer

03/2024 - 03/2025

- Technical contributor and primary developer for a DARPA program focused on utilizing Controlled Neural ODEs as a surrogate model in the AFSIM simulation environment. Ensured the Python-based (PyTorch) model was capable of operating as a plugin into AFSIM, C++ based, environment. Conducted feasibility experiments of different AI/ML techniques to improve Neural-ODE based surrogate model and constructed SharePoint slides detailing quantified results to present to the customer in monthly update meetings.
- Contributed to corporate IRAD focused on using AI/ML methods for deciding tactics in AFSIM scenarios. Used Meta's pre-trained data2vec2.0 pre-trained model for this task.

### Los Alamos National Laboratory

Los Alamos, NM

▷ Applied Machine Learning Fellow

05/2022 - 08/2022

- Contributed to research focused on modeling with Scientific Machine Learning with Universal Differential Equations - using the geophysical Korteweg-de Vries equation as a toy model using Julia SciML packages.

### The Ohio State University

Columbus, OH

▷ Graduate Research Assistant and NASA FINESST Fellow

08/2020 - 12/2023

- Used computational methods to understand how starburst galaxies launch multiphase winds - which is related to how galaxies evolve. Resulted in 10 published peer-reviewed papers, with 6 being first author. My papers proposed new ideas that challenged assumptions of previous models and verified their feasibility through simulation (C++/Python) experiments and derivation of new analytic equations and relationships.

## Award

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- NASA FINESST Fellowship | PhD student led proposal ~8% acceptance rate, ~\$97K

2022

## Technical Skills

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**Toolkit:** JIRA, Confluence, CI/CD Pipelines, Git, Python, PyTorch/Lightning, Mlflow, Linting, Unit Tests

**Specialization:** Time-Series Prediction, SciML, Neural ODEs/CDEs/SDEs, UQ, Transformers

**Knowledge:** Physics, Numerical Methods, Orbital Mechanics, Flight Dynamics, Quaternions, Machine Learning

# Publications

(Total 10, Six first-author papers.)

- Machine Learning**
- “Neural ODEs as a discovery tool...,” Nguyen et al. 2023, [NeurIPS 2023](#) Workshop on M.L. and Physical Sciences.
  - “Neural Astrophysical Wind Models,” Nguyen, 2023, [ICML 2023](#) Workshop on M.L. for Astrophysics.
- Astrophysics** (*PhD research: Multi-dimensional simulations of multi-phase winds from starburst galaxies*)
- 4 first author papers in MNRAS, MNRAS Letters, and Astrophysical Journal Letters. 4 co-author papers.

# Education

<b>Ph.D. in Physics</b> , The Ohio State University	08/2018 - 12/2023
<b>M.S. in Physics</b> , The Ohio State University	08/2018 - 05/2021
<b>B.S. in Physics and Astrophysics</b> , Arizona State University	08/2014 - 05/2018