Anh N. Nhu

anhu@umd.edu | anh-nn01 | anh-nhu-86938b1a2 | jl5-YL8AAAAJ

Education

University of Maryland - College Park — Expected: May 2029
Ph.D. in Computer Science (GAMMA Lab, Advisor: Prof. Ming C. Lin) — *GPA: 4.0/4.0*

University of Maryland - College Park — May 2024
B.S in Computer Science (Magna Cum Laude / Graduated with High Honors) — *GPA: 3.99/4.0*

High School for Gifted Students, VNU University of Science — Hanoi, Vietnam
Specialization: Mathematics and Informatics — *Grade: 9.4/10.0*

Peer-reviewed Publications

8. ***Anh N. Nhu****, *Sanghyun Son**, *Ming Lin*. "Time-aware World Model for Adaptive Prediction and Control." *International Conference on Machine Learning (ICML) 2025*. [Paper].

7. *Yiqun Xie*, ***Anh N. Nhu***, *Xiao-Peng Song, Xiaowei Jia, Sergii Skakun, Haijun Li, Zhihao Wang*. "Accounting for Spatial Variability with Geo-aware Random Forest: A Case Study for US Major Crop Mapping." *Elsevier Remote Sensing of Environment (RSE)* (**Q1; Impact Factor: 11.1**). [Paper].

6. ***Anh N. Nhu***, *Abdu Zoghbi*. "BERTground: A Transformer-based Model of Background Spectra on the ISS-based NICER Space Telescope." *Proceedings of AAAI Conference on Artificial Intelligence (AAAI) 2024* [Paper].

5. ***Anh N. Nhu***, *Yiqun Xie*. "Towards Inherently Interpretable Deep Learning for Accelerating Scientific Discoveries in Climate Science." *ACM SIGSPATIAL 2023* [Student Research Competition Finalist] [Paper].

4. ***Anh N. Nhu***, *Ngoc-Anh Le, Shihang Li, Thang D.V Truong*. "Physics-Guided Reinforcement Learning System for Realistic Vehicle Active Suspension Control." *IEEE ICMLA 2023* [Paper].

3. ***Anh Nhu***, *Hieu Phan, Chang Liu, Xianglong Feng*. "A Comprehensive Defense Approach Targeting The Computer Vision Based Cheating Tools in FPS Video Games." *IEEE IPCCC 2023* [Paper].

2. ***Anh N. Nhu***, *Lei Wang*. "Exploring the Existence of Atmospheric Blocking's Precursor Patterns with Physics-Informed Explainable AI." *ICML 2023 Synergies of Scientific Modeling and Machine Learning workshop* [Paper].

1. ***Anh N. Nhu***, *Ritvik Sahapalj, Christina Justice, Inbal Becker-Reshef*. "Improve State-level Wheat Yield Forecasts In Kazakhstan on GEOGLAM'S EO Data by Leveraging A Simple Spatial-Aware Technique." *ICLR 2023 ML for Remote Sensing workshop*.

Preprints / Under-review Papers

2. ***Anh N. Nhu***, *Rifaa Qadri, Swati Ramnath, Laura Yu Zheng, Raj Bhansali, Sylvette La Touche-Howard, Tracy M. Zeeger, Tom Goldstein, Ming C. Lin*. "TACTIC: Trait-Aware Campaign Targeting and Impact Calibration with Vision-Language Models for Public Health Advocacy". [Paper].

1. *Long Phan, Alice Gatti, Ziwen Han, ...,* ***Anh N. Nhu****, ..., Summer Yue, Alexandr Wang, Dan Hendrycks* (1000+ contributors in a global collaborative effort). "Humanity's Last Exam."[Paper].

Academic and Professional Services

Program Committee Member & Reviewer
AAAI Conference on Artificial Intelligence (AAAI) — *2026*

Research and Work Experience

University of Maryland - College Park — College Park, MD, United States
Graduate Research Assistant (Advisor: Prof. Dr. Ming C. Lin) — *Jul. 2024 - present*

- World Model for Autonomous Driving: Working on multimodal world model of vehicle dynamics in complex situations for planning and controls.
- Time-Aware World Dynamics Model: Introduced a novel time-aware adaptive sampling method for world models, grounded in the Nyquist–Shannon theorem, that boosts training efficiency and enhances model robustness to diverse observation/control frequencies across robotic control tasks.

NASA Goddard Space Flight Center — Greenbelt, MD, United States
Undergraduate Researcher (Advisor: Dr. Abderahmen Zoghbi) — *Jun. 2023 - Aug. 2024*

- X-ray Background ML Modeling for ISS-borne NICER Space Telescope: Leverage physics priors to build the very first Deep Learning-based model of background X-ray photon counts (i.e. noisy photons) with physically realistic estimations. The proposed approach outperformed the state-of-the-art physics models quantitatively and qualitatively, facilitating better scientific analysis of high-energy astrophysical objects.

NSF-UMD Earth Cube — MD, United States
Research Assistant (Advisor: Prof. Dr. Yiqun Xie) — *Jan. 2023 - Aug. 2023*

- Spatial-Aware ML Models for Remote Sensing: Developed spatial-aware learning frameworks that incorporate spatial statistics to address the heterogeneity of remote sensing data. Spatial-aware models outperform traditional methods in various US crop mapping applications, particularly in key local regions.
- Interpretable Neural Network for Geo-science and Climate Science: Proposed a novel Inherently Interpretable Neural-Additive Convolutional Neural Network architecture (NA-CNN) with significantly more consistent and less noisy spatial explanations to facilitate scientific discoveries.

NASA Harvest Consortium — MD, United States
Undergraduate Researcher (Advisor: Prof. Dr. Ritvik Sahajpal) — *Sep 2022 – Jun 2023*

- Spatial-Aware Crop Yield Forecasts: Developed a simple, model-agnostic spatial-aware Machine Learning algorithm that can be integrated into any model to improve the accuracy of crop yield forecasts, especially in local areas with historically highest forecasting errors.

Purdue University — IN, United States
Research Fellow (Advisor: Prof. Dr. Lei Wang) — *May 2022 – Aug 2022*

- Physically Explainable AI Framework for Extreme Weather Events: Worked on the application of Explainable AI (XAI) to identify precursor patterns of atmospheric blocking. The study finds that the composite precursor patterns detected by XAI are physically consistent with the ground-truth composite patterns, hypothesizing the existence of heatwaves' precursor patterns.

Teaching Experience

University of Maryland - College Park — College Park, MD, United States
Teaching Assistant: CMSC 351 Algorithms — *Aug. 2024 - Dec. 2024*

Talks & Presentations

4. **Anh N. Nhu**, Abderahmen Zoghbi. "Machine Learning x High-Energy Astrophysics: Fusing Deep Neural Network with Unsupervised Clustering for Modeling NICER Space Telescope's X-ray Background" ***NASA Goddard Space Flight Center AI Showcase***. Jul. 2024. Greenbelt, MD, USA.

3. **Anh Nhat Nhu**, Lei Wang. "Exploring the Existence of Precursor Patterns of Atmospheric Blocking using Explainable Physics-Informed Convolutional Neural Network" ***NSF National Center for Atmospheric Research.*** Mar. 2024. Boulder, Colorado, USA.

2. **Anh Nhat Nhu**, Lei Wang. "Physics-Informed Machine Learning to Predict and Detect Atmospheric Patterns of Extreme Heatwaves on Two-layer QG Model" [**Oral presentation**] ***103rd AMS Annual Meeting.*** Jan. 2023. Denver, Colorado, USA.

1. Yuke Zhang, **Anh Nhat Nhu**, Valentina Castaneda Amaya, Wencong Xie, Lei Wang (2022), "Transfer Learning on Convolutional Neural Network for Predicting the Northern Hemispheric Extreme Heatwaves" ***AGU Fall Meeting.*** Dec. 2022. Chicago, Illinois, USA.

Honors & Awards

University of Maryland's Ph.D. Dean Fellowship 2024, 2025
Ph.D. Fellowship for selected Ph.D. students (total $5000)

Northwestern University's Ph.D. Cabell Fellowship 2024
McCormick School of Engineering's most prestigious fellowship awarded to 10 selected Ph.D. students

ACM SIGSPATIAL's Research Competition Finalist 2023
Selected among 14 finalist research papers in ACM's Student Research Competition 2023

Purdue's Summer Research Fellowship 2022
Awarded fellowship for conducting research at Purdue University

Bronze Medal in Google's Open Kaggle Competition 2022
Placed top 6% (104/2025 competitors) in Google's Starfish Detection Competition

Bronze Medal in Google Brain's Open Kaggle Competition 2021
Placed top 8% (189/2605 competitors) in Google Brain Ventilator Pressure Prediction Competition

Relevant Skills

Programming: Python, C/C++, Java, SQL
Tools: PyTorch, Tensorflow, NumPy, UnSloth, Diffuser, HuggingFace, JAX, Pandas, Scikit-learn, OpenCV, Git
ML: World Model, Reinforcement Learning, Robot Learning, Computer Vision, Vision-Language Models, LLM