Alex Ning

Machine Learner
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Education

PhD in Computer Science *(Incoming)* Aug 2026 - May 2031
New York University
Advised by Greg Durrett

BA in **Mathematics** and **Computer Science** **(2.5 year graduation)** Aug 2022 - Dec 2024
University of Virginia
GPA: **3.99** / 4.0
Echols Scholar

Experience

Independent Researcher Dec 2024 - May 2026
Collaborating with and receiving support from the **Gomes Group @ CMU** and **LIVE Robotics Lab @ UVA**

Researcher, UVA Physics Department May 2025 - Feb 2026

NSF Center for Computer Assisted Synthesis SURF, Carnegie Mellon University May 2024 - Aug 2024
SURF: Summer Undergraduate Research Fellowship
Performed research at the **Gomes Group @ CMU** on ML knowledge transfer methods

Works

Visualizing LLM Latent Space Geometry Through Dimensionality Reduction
Alex Ning, Vainateya Rangaraju, and Yen-Ling Kuo
ICLR Blogposts Track 2026
Blogpost: https://iclr-blogposts.github.io/2026/blog/2026/vis-llm-latent-geometry/
GitHub: https://github.com/Vainateya/Feature_Geometry_Visualization

Recurrent convolutional neural networks for non-adiabatic dynamics of quantum-classical systems
Alex Ning, Lingyu Yang, and Gia-Wei Chern
Physical Review E (2026)
Paper: https://doi.org/10.1103/7dr5-68ky
arXiv: http://arxiv.org/abs/2412.06631
GitHub: https://github.com/apning/holstein-parc

Learning When to Stop: Adaptive Latent Reasoning via Reinforcement Learning
Alex Ning, Yen-Ling Kuo, and Gabe Gomes

Preprint (2025)
arXiv: https://arxiv.org/abs/2511.21581
GitHub: https://github.com/apning/adaptive-latent-reasoning

Change-of-Basis Pruning via Rotational Invariance
Alex Ning and Vainateya Rangaraju
Preprint (2025)
arXiv: [2511.16061] Change-of-Basis Pruning via Rotational Invariance
GitHub: https://github.com/apning/change-of-basis-pruning

Presentations

Liquid Glass - Visualizing Transformer Latent Space Dynamics
Alex Ning, Vainateya Rangaraju, and Yen-Ling Kuo
UVA LLM Workshop, Charlottesville, VA (2024)
Poster: http://links.alexning.com/f2024-lg-poster

Quantum Density Matrix Evolution through Novel Physics-Informed Neural Networks
Alex Ning and Gia-Wei Chern
UVA Echols Research Symposium - Oral Presentation (2024)
UVA URN Research Symposium - Poster Presentation (2024)
Poster: http://links.alexning.com/s2024-pinn-poster

Leadership

ML @ UVA, *President & Co-Founder* Aug 2023 - Dec 2024

- ➢ https://mlatuva.org/
- ➢ Grew organization to become the **largest** ML club at UVA with **100+** members
- ➢ Acquired and partnered with 5+ corporate and academic partners (incl. LMI, Adobe, and JHUAPL)
- ➢ Provide **mentorship** to 10+ projects, **teach ML lectures**, lead weekly **reading group**, organize **events**

Teaching

Teaching Assistant – Computer Systems & Organization 2, UVA CS Department Jan 2024 - Dec 2024
Office hours, labs, grading

ML@UVA Lecture Series – Intro to Transformers from a Mechanistic Interpretability Perspective Nov 2024
(1) https://youtu.be/I5tXDlg7gGM, (2) https://youtu.be/p_hMsXVcuDA, (3) https://youtu.be/_k_8AJSNmk0

ML@UVA Weekly Reading Group Lead Sep 2024 - Dec 2024
https://www.mlatuva.org/education

ML@UVA Interest Projects Mentor Sep 2023 - Dec 2024
Weekly mentorship to ML project teams

Languages

English (Native) | Python (Native) | PyTorch (Native) | Assembly (Unintelligible)