ALEXI GLADSTONE

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EDUCATION

University of Illinois Urbana-Champaign (UIUC), Computer Science **August 2024 - May 2027 (Expected)**
Ph.D. in Computer Science
• Advised by Professor **Heng Ji** and **Tong Zhang**
• Awarded **NSF Graduate Research Fellowship (NSF GRFP)**
• Thesis Committee: **Yann LeCun**

University of Virginia (UVA), School of Engineering **August 2020 - May 2024**
Bachelor of Science in Computer Science — 4.0 Cumulative GPA — 4.0 Major GPA
• Admitted into Rodman Scholar Engineering Honors program — top 3% of UVA engineering students, graduated with highest distinction

SELECTED PUBLICATIONS

More publications listed below

- **Alexi Gladstone**, Ganesh Nanduru, Mofijul Islam, Peixuan Han, Hyeonjeong Ha, Aman Chadha, Yilun Du, Heng Ji, Jundong Li, Tariq Iqbal. "**Energy-Based Transformers are Scalable Learners and Thinkers**" [Website] [arXiv] [YouTube]
- [Manuscript Preparation] **Alexi Gladstone***, Ninad Daithankar*, Heng Ji. "Is there an Optimal Set of Assumptions for Training Visual Encoders?" **ICML 2026**
- Md Mofijul Islam, **Alexi Gladstone**, Riashat Islam, Tariq Iqbal. "EQA-MX: Embodied Question Answering using Multimodal Human Expression" **ICLR 24 [Spotlight Acceptance Rate 5%]** [OpenReview]

WORK HISTORY

Research Scientist Intern, Meta, Seattle, Washington **May 2025 - December 2025**

- Worked on memory, reasoning, and scalability via "Energy-Based Layers" paper

Machine Learning Research Intern, Palantir Technologies, Seattle, Washington **May 2024 - August 2024**

- Developed automatic unsupervised evaluation pipeline for Multimodal Large language Models (MLLMs), Visual Language Models, and Vision encoders for the instance-based visual search task
- Developed continued pre-training code repository for training instance-based visual search models–including contrastive pre-training and multimodal pre-training with text and image alignment
- Fine-tuned models that achieved GPT-4o level performance on internal benchmarks for visual search
- Presented literature review on current MLLMs and perspectives on the future of multimodal models, presented work to entire ML research team at Palantir two other times

Research Assistant, Collaborative Robotics Lab @ UVA, Charlottesville, VA **November 2021 - May 2024**

- *Invented* the concept of *guided residual attention*, an innovative improvement over traditional residual connections in deep learning
- Created and trained novel multimodal learning models using PyTorch Lightning and a multi-GPU cluster environment that achieved *state-of-the-art object detection performance* on existing referring expression comprehension datasets

- Studied literature, developed research ideas, designed research experiments, discovered research challenges, led *large scale model training* (2 billion+ parameters) on cloud servers, and wrote multiple research papers
- Led team of 3 undergraduate students in development of simulator, dataset, as well as in conducting experimentation

Research Assistant, Professor Jundong Li's Research Lab @ UVA, Charlottesville, VA **March 2023 - May 2024**

- Led project regarding a new approach for the pre-training of autoregressive models more capable of System 2 like thinking using self-supervised learning in Computer Vision and Natural Language Processing, "Cognitively Inspired Energy-Based World Models"
- Invented new approach towards training Energy-Based Models that is more scalable and stable than existing approaches

Forward Deployed Software Engineer Intern, Palantir Technologies, New York, New York **May 2023 - August 2023**
Focus on Machine Learning

- Spearheaded entire real-time news analysis application leveraging large language models (LLMs) for ASPR (US government organization) to *rival existing billion dollar news analysis products*
- Managed Amazon EC2 instance cloud computing resources to develop machine learning pipeline for automatic evaluation of retrieval augmented Large Language Models (LLMs) responses
- Demoed work on news analysis application and retrieval augmented LLM pipeline to people ranging from the *head of machine learning* at Palantir and entire machine learning research team to *federal government employees*
  - News analysis application was also demoed to *head of AI at ASPR* (US government organization)
  - News analysis application won an AI award from the Centers for Disease Control and Prevention
  - News analysis application (NewsScape) links: Description, Mention
- Researched and utilized LLMs and several prompt engineering techniques to maximize product performance
- Brainstormed with machine learning research team on LLM fine-tuning with limited amounts of instruction data and automated retrieval augmented LLM evaluation

Summer Research Fellow, Collaborative Robotics Lab @ UVA, Charlottesville, VA **May 2022 - August 2022**

- Wrangled, cleaned, and visualized 500+ GB of data using Python (Pandas, Matplotlib, Numpy, Seaborn) to create 50+ data visualizations for two papers
- Utilized and debugged simulator to produce over 1 terabyte of labeled data on a Linux-based server, conducted comprehensive data cleaning and wrangling
- Self-studied machine learning and neuroscience. Formulated and researched "The Neuroplasticity Hypothesis"—a hypothesis inspired by the human brain revolving around residual connections, DenseNet, and ReLU [Blogpost]

Cofounder/Software Engineer, Yurii LLC, Dumfries VA, [Code] **May 2021 - November 2021**

- Cofounded a startup, was lead software engineer and managed codebase of $10,000+$ lines of code
- Spent 30 hours per week building front-end and back-end and led biweekly meetings of $4-6$ people

Teaching Assistant, CS Software Fundamentals @ UVA, Charlottesville VA **August 2021 - December 2021**

- One of two TA's who aided in the creation of course content through developing exam questions and assisting in the creation of a major programming assignment
- Assisted 100+ students in solution generation and debugging on programming homeworks and labs

ACADEMIC SERVICES

Reviewer, Transactions on Machine Learning (TMLR) 2025
Reviewer, International Conference on Learning Representations (ICLR) 2026
Reviewer, Neural Information Processing Systems (NeurIPS) 2025
Reviewer, International Conference on Computer Vision (ICCV), 2025
Reviewer, International Conference on Machine Learning (ICML) 2025, selected as **Top Reviewer**
Reviewer, Neural Information Processing Systems (NeurIPS) 2024
Reviewer, European Conference on Computer Vision (ECCV), 2024
Reviewer, Neural Information Processing Systems (NeurIPS) Datasets and Benchmarks Track, 2023
Reviewer, Neural Information Processing Systems (NeurIPS) Datasets and Benchmarks Track, 2022

INVITED TALKS

Energy-Based Transformers and the Future of Scaling—University of Geneva, Invited Workshop Talk
Energy-Based Transformers and the Future of Scaling—Vector Institute for Artificial Intelligence
Energy-Based Transformers and the Future of Scaling—Institute for Defense Analysis
Energy-Based Transformers and the Future of Scaling—Harvard Kempner Institute
Energy-Based Transformers and the Future of Scaling—Active Inference Institute
Energy-Based Transformers and the Future of Scaling—AlphaXiv
Energy-Based Transformers and the Future of Scaling—UIUC

STUDENTS MENTORED

- Kyle Nguyen 2025-present
- Sid Dayaneni 2025-present
- Avery Qian 2024-present
- Aniket Tathe 2024-2025
- Ninad Daithankar 2024-present
- Ganesh Nanduru 2023-2024
- Tao Groves 2022-2023

SKILLS

Deep Learning Tools/Frameworks	PyTorch, PyTorch Lightning, Hugging Face, TensorFlow, JupyterLab/Colab Wandb, Scikit Learn
Programming Languages	C++, C, C#, Java, Python, SQL, R, Bash, LaTeX, TypeScript
HPC Platforms	Amazon EC2, UIUC Research Computing (Delta), UVA Research Computing
General Tools	Git, Linux, Docker, Slurm, Amazon S3 (AWS), Unity3D, ROS
IDE	Visual Studio Code, Microsoft Visual Studio, Eclipse, Android Studio
Web Programming	Django, PHP, Javascript
Database	MySQL, SQLite

RELEVANT COURSES

Machine Learning • Natural Language Processing • Machine Learning in Image Analysis • Advanced NLP • Probability • Linear Algebra • Statistics • Cognitive Science • Data Structures & Algorithms • Operating Systems • Computer Architecture • Advanced Software Development • Robotics for Software Engineers • Data Science with R • Cybersecurity • Human Robot Interaction • Databases • Theory of Computation • Software Development Fundamentals • Digital Logic Design • Discrete Math • Differential Equations • Cryptocurrency

AWARDS AND ACHIEVEMENTS

- Awarded the NSF Graduate Research Fellowship (NSF GRFP)
- Louis T. Rader Research Award—one of five undergraduate CS students (out of over 1400) to receive Louis T. Rader Research Award for my contributions as a research assistant at UVA
- CDC Accelerated AI Award—AI backed News analysis application from Palantir Internship in New York won an Accelerated AI award from the Centers for Disease Control and Prevention (CDC)
- Dean's Summer Undergraduate Research Fellowship—one of less than ten 3rd year students to receive this summer research opportunity
- Alex and Barbara Sadler Scholarship—given to students based on financial need as well as a strong interest in the pursuit of a career in engineering
- Donald and Jean Heim Scholarship—awarded for being in the engineering school and maintaining a high GPA while demonstrating a need for financial aid
- Valedictorian of Forest Park High School

PUBLICATIONS

- [Manuscript Preparation] **Alexi Gladstone**, Vincent-Pierre Berges, Barlas Oğuz, Shane Moon, Heng Ji, Luna Dong, Yann LeCun, Lambert Matthias. "Energy-Based Layers: Unlocking New Transformer Scaling Laws with Explicit Associative Memories" **ICML 2026**
- [Manuscript Preparation] **Alexi Gladstone***, Ninad Daithankar*, Heng Ji. "Is there an Optimal Set of Assumptions for Training Visual Encoders?" **ICML 2026**
- [Manuscript Preparation] **Alexi Gladstone**, Avery Qian, Shivanshu Shekhar, Ninad Daithankar, Yilun Du, Heng Ji, Tong Zhang. "Energy Outscales Diffusion and Flow—Was More Supervision All We Needed?" **CVPR 2026**
- [Under Review] Travis Davies, Yiqi Huang, **Alexi Gladstone,** Yunxin Liu, Xiang Chen, Heng Ji, Huxian Liu, Luhui Hu, "EBT-Policy: Energy Unlocks Emergent Physical Reasoning Capabilities" [arXiv]
- [Under Review] Samuel Schapiro, Sumuk Shashidhar, **Alexi Gladstone,** Jonah Black, Royce Moon, Dilek Hakkani-Tur, Lav R Varshney. "Combinatorial Creativity: A New Frontier in Generalization Abilities" [arXiv] **ICLR 2026**
- [Under Review] **Alexi Gladstone**, Ganesh Nanduru, Mofijul Islam, Peixuan Han, Hyeonjeong Ha, Aman Chadha, Yilun Du, Heng Ji, Jundong Li, Tariq Iqbal. "**Energy-Based Transformers are Scalable Learners and Thinkers**" [Website] [arXiv] **ICLR 2026**
- Md Mofijul Islam, **Alexi Gladstone,** Sujan Sarker, Ganesh Nanduru, Md Fahim, Keyan Du, Aman Chadha, Tariq Iqbal. "Embodied Referring Expression Comprehension Through Multimodal Residual Learning" **HRI 2026** [arXiv]
- Md Mofijul Islam, **Alexi Gladstone**, Riashat Islam, Tariq Iqbal. "EQA-MX: Embodied Question Answering using Multimodal Human Expression" **ICLR 24 [Spotlight Acceptance Rate 5%]** [OpenReview]
- Md Mofijul Islam, **Alexi Gladstone**, Tariq Iqbal."PATRON: Perspective-aware Multitask Model for Referring Expression Grounding using Embodied Multimodal Cues." **AAAI 23 [Main Track Acceptance Rate 19.6%]** [PDF]
- Md Mofijul Islam, Reza Manuel Mirzaiee, **Alexi Gladstone**, Haley N. Green, Tariq Iqbal. "CAESAR: An Embodied Simulator for Generating Multimodal Referring Expression Datasets." **NeurIPS 2022 (Track on Datasets and Benchmarks)** [PDF]