385.292.2889 | oliverproudfoot@gmail.com | linkedin.com/in/oliver-proudfoot | oliverproudfoot.com | Ohio State University

OLIVER PROUDFOOT

Data scientist and Computer Science Ph.D. student at Ohio State studying LLM reasoning, interpretability, and reinforcement learning; seeking 2027 industry research internships.

EDUCATION

The Ohio State University | **Ph.D. student, Computer Science and Engineering (AI)** | 8/2025 - 5/2030 (planned)

Former University Fellow; Advisor: Andrew Perrault

- Research on reliable reasoning and decision-making with LLMs and reinforcement learning.
- Selected coursework: Advanced AI · ML Training & Inference Systems · Agentic Reinforcement Learning

Brigham Young University | **B.S., Applied & Computational Math with ML concentration** | Apr 2022

- GPA 3.95; Cum Laude; full-tuition scholarship. Elected to take and then TAed for graduate-level classes in machine learning and mathematical theory.

RESEARCH

BASIC: Isolating Key Decisions During LLM CoT | Oliver Proudfoot and Andrew Perrault

Accepted at the NeurIPS 2026 Workshop: Interpretability as a Science

- Fine-tuned models on structured reasoning traces, preserving AIME 2024/25 accuracy and improving faithfulness scores by 48% over unstructured reasoning models in off-policy intervention evaluations.
- Built BASIC (Better Abstractions with Structure for Interpretability and Control), a framework that separates chain-of-thought into short decisions and execution steps to study interpretability and control.

Matrix multiplication exponent | **Selected project** | Sep 2026

- Used AI to derive an improved matrix multiplication exponent bound, from 2.371177 to 2.371045, and formalize the result in Lean.

  Code: GitHub repository | **Write-up:** Pocket-Sized Super-Mathematical Intelligence

WORK

Pluralsight | **Data Scientist, Product Features** | Jun 2022 - Jun 2025

- Led development of a video-corpus intelligence system using Anthropic and OpenAI LLMs, paving the way to multimillion-dollar contracts.
- Nominated by teammates to represent Pluralsight at the 2023 Vista Equity Partners' GenAI hackathon; won $20,000 with an agentic curriculum curator, now GA in the app.
- Automated content creation with hands-on labs and assessments; pitched to executives five times and ran GenAI trainings for up to 70 employees.
- Augmented search with hypothetical document embeddings, improving click-through by ~2%.
- Systematically evaluated OpenAI GPT and Anthropic Claude against internal evals to measure domain-specific performance and task-specific feasibility.
- Created two user-facing recommendation algorithms from ideation to production; fine-tuned LLMs for content creation and evaluation.
- Designed a graph-based algorithm to extract signals from user behavior and model entity relationships.

Sandia National Laboratories | **Intern, ML for Correlated Intelligence** | Apr 2020 - Dec 2021

- Researched the computer-vision applications and mathematical theory of FHOG in polar coordinates for rotation-invariant target detection and localization.
- Improved detection results by ~3% over the state of the art; optimized FHOG to reduce spatial complexity by up to 99% and temporal complexity by up to 67%.

BYU Math & MAGICC Lab | **Teaching & Research Assistant** | Sep 2019 - Apr 2021; Dec 2021 - Apr 2022

- Investigated sharp convexity in data-space vs. parameter-space and its impact on neural-network robustness.
- Developed course material and assessed performance for 38 graduate math students; trained a CNN on simulated boat data to predict 6DoF rotation and translation from UAV video.

SKILLS

AI & Reasoning	Training & Evaluation	HPC & Systems	Engineering
LLMs / Interpretability	SFT / RL fine-tuning	GPU computing / HPC	Python / SQL
Reasoning analysis	Model evaluation	Slurm	AI-assisted Lean
NLP / Computer vision	Prompt engineering	Linux / Containers / AWS	CI/CD / Applied math

SPEAKING & COMMUNITY LEADERSHIP

AI-EDGE Seminar Series, Ohio State University | Nov 6, 2026 (scheduled)

- "AI and The Future of Math": upcoming seminar on AI-assisted mathematical discovery, proof development, and Lean formalization.

BYU Management Society | AI Panelist | Sep 2026

- Participated in a panel on the state of AI in industry and practical applications in everyday life.

SVU Faculty Conference | Aug 2024

- Gave two 90-minute keynotes and led a workshop for SVU faculty and staff on education and LLMs; provided one-on-one consulting for educators.

BYU Applied Math Colloquium | Apr 2024

- Gave a 60-minute BYU Applied Math Colloquium talk on data science and the role of math and LLMs in industry.

Church and community service

- Directed training and support for 20+ volunteers, organized five English-learning programs for Hispanic immigrants, and led 70+ students in church and community service; coordinated with congregation leaders.

Food & Care Coalition | 2020–2021

- Worked predawn to prepare food and serve the homeless with the Food & Care Coalition.