Finn Vamosi

(587) 436-2196 – finn.vamosi@ucalgary.ca – https://finnvamosi.github.io/

EDUCATION

Bachelor of Science in Computer Science *(GPA: 3.90)*
University of Calgary; Canada 2021 – 2025
University of Texas at Austin; USA Fall 2024

PUBLICATIONS

Vamosi, F. G., & Forkert, N. D. (2025). CRAwDAD: Causal Reasoning Augmentation with Dual-Agent Debate. *AAMAS 2026* **(Under review)**

Stanley, E. A. M., Vigneshwaran, V., Ohara, E. Y., **Vamosi, F. G.**, Forkert, N. D., & Wilms, M. (2025). Synthetic Ground Truth Counterfactuals for Comprehensive Evaluation of Causal Generative Models in Medical Imaging. *MICCAI 2025*

Ohara, E. Y., Vigneshwaran, V., Souza, R., **Vamosi, F. G.**, Wilms, M., & Forkert, N. D. (2025). Dimensionality reduction in 3D causal deep learning for neuroimage generation: an evaluation study. *SPIE 2025*

Ohara, E. Y., **Vamosi, F.**, Patil, H., Vigneshwaran, V., Wilms, M., & Forkert, N. D. (2024). MACAW 3D: a masked causal normalizing flow method for counterfactual 3D brain image generation. *SPIE 2025*

SCHOLARSHIPS & AWARDS

Data Processing Management Association Prize ($400) 2025
Killam Fellowship (USD$6,750) **2024**
Jason Lang Scholarship ($1,000) 2023 and 2024
Louise McKinney Scholarship ($2,500) 2022
Schulich Leader Scholarship ($80,000) **2021**
President's Admission Scholarship ($5,000) 2021
Alexander Rutherford Scholarship ($2,500) 2021

Arts and Science Honours Academy Entrance Scholarship ($1,000) 2021

Alberta Innovates Summer Research Studentship ($7,500) 2023
NSERC Undergraduate Student Research Award ($7,500) 2022, 2024, and 2025
Dean's List ($0) 4x Recipient, 2021-25

RESEARCH EXPERIENCE

Thesis Research, Dr. Tyler Bonnell 2024 – 2025
University of Calgary, Faculty of Science
Project title: One-Life Reinforcement Learning in Naturalistic Environments

- Implemented Gymnasium environment with scaffolding and dynamism, bringing the learning setup closer to natural, real-world analogues
- Adapted a novel associative learning formulation for continual learning
- Wrote full research report and thorough literature review, earning an 'A' in the course

Research Assistant, Dr. Nils Forkert 2022 – 2025
University of Calgary, School of Medicine
Project title: CRAwDAD: Causal Reasoning Augmentation with Dual-Agent Debate

- Conducted an extensive literature review of causality understanding in LLMs and multi-agent debate effectiveness across domains
- Integrated DeepSeek-R1 and Qwen3 LLMs through Ollama to enable structured debate of causal inference benchmark tasks
- Observed increases in accuracy of up to 12% on the most challenging questions demanding counterfactual thinking after engaging in debate

Project title: Evaluating Causal Counterfactual Generation in Medical Imaging

- Developed an experimental pipeline using a novel synthetic dataset generation tool to evaluate the bias removal of counterfactual vision models
- Employed PCA dimensionality reduction and trained the model in several components to reduce memory usage and accelerate model convergence
- Trained a specialized CNN to assess counterfactual image quality and validate bias removal efficacy

Project title: Deep Learning Age Prediction of Causally-Generated Brain Scans

- Filtered datasets to exclude subjects with confounding neurological conditions, ensuring unbiased training

- Trained and evaluated 2D and 3D CNNs for accurate age prediction from brain MRI data, validating causal generative model quality

Research Assistant, Dr. Christian Jacob 2019 – 2022
University of Calgary, Faculty of Science
Project title: Immersive Cell Biology Education in Virtual Reality

- Developed an immersive virtual reality (VR) experience in Unreal Engine 4 for teaching cell biology in a memorable and approachable way
- Designed, edited, and animated unique 3D models in Blender
- Implemented best practices of VR development to reduce discomfort while playing and improve immersion

VOLUNTEER EXPERIENCE

Food Bank Volunteer, University of Calgary Students' Union 2022 – 2024
Satellite Communications Team Member, CalgaryToSpace 2021 – 2022
Robotics Team Lead, William Aberhart High School 2020 – 2021
Volunteer Instructor, Under The GUI Academy 2020

SKILLS

Languages: English (Native), French (Fluent)
Programming: Python (PyTorch, NumPy, Pandas, Ollama, Gymnasium), Java, R
Tools: Unreal Engine 4, Blender, LaTeX, Unix, Tableau, SLURM, Git

RESEARCH INTERESTS

AI alignment, safety, interpretability, explainability, fairness, and robustness

MEMBERSHIPS

Artificial Intelligence Club 2023 – present
Data Science and Machine Learning Club 2022 – present
Computer Science Undergraduate Society 2021 – present