CAMERON RYAN

GitHub

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EDUCATION

Northeastern University *June 2027*

Candidate for Bachelor of Science Mathematics and Physics

GPA: 3.89, Dean's List

Involvement: Disrupt (FinTech Club) leadership role, NU Aerospace (avionics), Nordic Ski Club

RESEARCH EXPERIENCE

Undergraduate Research Program University of Rochester Laboratory for Laser Energetics

- *Summer 2025*: Graph convolutional neural networks applied to analyzing high pressure phase transitions
- *Summer 2023*: Worked in Python, Javascript, Perl, and PHP to form CGI authentication scripts for securing laboratory control system

High School Research Program University of Rochester Laboratory for Laser Energetics *Summer 2022*

Investigated Podman containers for scientific computing projects with Red Hat Enterprise Linux, culminating in project report

Molecular Dynamics Software Volunteer Babbitt Lab, Rochester Institute of Technology *2022*

Facilitated research on Web compiled version of CppTraj software for comparatively analyzing molecular dynamics simulations of proteins through Javascript, WebAssembly and C++

PUBLISHED RESEARCH

Gregory A. Babbitt et al. ATOMDANCE: Kernel-based denoising and choreographic analysis for protein dynamic comparison". In: Biophysical Journal (Mar. 2024). doi: 10.1016/j.bpj.2024.03.024.

PROJECT HIGHLIGHTS

Algorithm Trading *Summer 2025*

Created automatic financial equity trading codebase for personal use. Code is not open source

Search Engine *Summer 2024*

Search engine performing large scale image and text retrieval on Wikipedia content adopting neural network embeddings. Project achievements include:

- Optimized multi threaded containerized web crawler for indexing large amounts of data quickly
- Constructed gRPC server for communication between Docker containers
- Fabricated container based nearest neighbor search server for high volume semantic content probing
- Scripted Python web app for handling HTTP search queries, producing consumer facing search engine

Naturify *Spring 2023*

- Made iOS App for species classification available on the Apple App Store, and inference server
- Trained image classification neural network on Nvidia A100 GPU using Pytorch
- Trained metadata neural network for calculating geographic densities of wild species

Floral *Spring 2023*

Built Python neural network library for Jax available on Pypi.

WordLab *Fall 2021*

Published iOS App for taking notes, and employing AI to query information within saved notes.

SKILLS

Programming Languages (by proficiency)

Python, Swift, Javascript, HTML, Rust, CSS, C, Java, Assembly, C++, Objective C, TI Basic, Perl, PHP

Machine Learning Frameworks

Jax, Pytorch, Tensorflow, CoreML

Miscellaneous Experience

Arduino, Autodesk Fusion 360, Autodesk Inventor, Desmos, LaTeX

Apple Developer Portfolio iOS Apps