Aaron Belikoff
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Education

Worcester Polytechnic Institute | BS in Computer Science | GPA 3.89 (*Fall 2024 - Spring 2028)*

- **Research** (*Spring 2024 - Current)*
  - Summer '25: Participated in an Undergraduate Research Program, wrote a paper on Causal Inference with LLM Agents. **Paper accepted** at MIT Undergraduate Research Technology Conference 2025
  - Working on causal reasoning and natural language processing (NLP) under Prof. Raha Moraffah
  - Fine tuned LLMs for poverty assessment & made a website to demonstrate their capabilities.
  - Wrote & optimized performance of a Python program to evaluate LLMs on various benchmarks using WPI computing cluster
- **Software Development Intern (work-study)** @ Academic/Research Computing (*Fall 2024 - Current)*
  - Created a LLM chatbot to answer student queries about course material on a learning platform, Canvas. **RAG , SQL, Flask, Python, Apache**
  - Created Regi, a registration system for software training sessions offered by WPI. **SQL, Javascript, Go**
- **Courses:** Program Design, Operating Systems, Discrete Math, Linear Algebra, Differential Equations, Probability, Calculus 4, Stats, 3D Modeling
- **Extracurricular:** Varsity Men's Rowing (*Fall 2024 - Current)*

Internship

- Intern Software Engineer @ Ethereal Matter (*Summer 2023 - Summer 2024)*
  - Virtual Reality Game Design & Programming, Motion Capture, 3D Model Rigging & Animation

Personal Projects

Federated Learning **Skills: Socket networking, Distributed computing, Numpy**

- Developed a set of python programs which train a Recurrent Neural Network (RNN) on a distributed network of computers using evolution strategies. The trained model generates sonnets in the style of Shakespeare.

Camera-Based Fingertip Tracker **Skills: PyTorch, C++, Data Processing**

- Trained a set of Computer Vision AI models used together in a program to let me draw & write notes on my computer using only the camera to track my hands. Developed a custom data collection & labeling pipeline to ensure high quality data.

C++ Projects

- 2D Eulerian Fluid Simulation **;** Boids Simulation **;** Custom 3D Physics & Render Engine ; 3D fractal renderer using ray-marching ; Image to Painting converter, recreates images using only bezier curves

Python Projects

- Training neural networks via reinforcement learning to play various games (Snake, Elden Ring, Overwatch)
- Lossless image compression using deep neural networks and arithmetic coding for archival of large image galleries

Technical Skills & Knowledge

- Python, C++, Javascript, Go, Java, SQL, C#, Flask, PyTorch, Numpy, Pandas, OpenCV
- LLMs, Agentic LLM Systems, GRPO/DPO, RL, High Performance Computing, Retrieval Augmented Generation (RAG)