

Zhiyang (George) Zuo

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EDUCATION

University of Massachusetts Amherst

Amherst, MA

Master's Degree in Computer Science

September 2024 - May 2025

Relevant courses: Neural Networks, Reinforcement Learning, Machine Learning, Algorithms for Data Science, Formal Language Theory, Distributed Systems, System Defense and Test, Information Assurance

University of Massachusetts Amherst

Amherst, MA

Bachelor of Science in Computer Science and Mathematics (GPA: 3.993)

September 2020 - May 2024

Relevant courses: Artificial Intelligence, Information Retrieval, Applied Statistics, Linear Algebra, Diff Eq

EXPERIENCE

Stoke Therapeutics

Bedford, MA

Bioinformatics Intern

June 2022 – August 2022

- Collaborated with 3 scientists to implement a High-Throughput RNA-Seq QC pipeline using AWS, Docker, and Snakemake to automate sequencing data processing in the TB scale and generate dynamic visual reports.
- Performed tests to assess the efficiency of RNA-Seq QC tools and developed a Python script to automatically configure AWS cloud computing resources for the pipeline based on input size to lower cost by up to 50%.

Biogen

Cambridge, MA

Summer Intern, Technical Product Complaint Department

June 2021 – August 2021

- Designed and implemented a product defect knowledge wiki on Confluence with a global team of SMEs that improved team efficiency and enabled the department to retain key knowledge essential for team functioning.
- Created a Python program to extract common wordings from 10k+ product complaints for new-hire training.
- Automated an hour-long Excel index match process using Python and the Pandas library to standardize data processing and reduced the time required for the team to generate the monthly report.

Manning College of Information and Computer Sciences

Amherst, MA

Undergraduate Course Assistant: Operating System & Physical Computing

September 2022 – May 2024

- Hosted semiweekly office hours to clarify complex concepts and support student learning.
- Communicated directly with the professor to design and refine assignments and exams.
- Collaborated with UCAs and TAs to coordinate timely grading of 150+ students' assignments and exams.

PROJECTS

Search R² (UMass Industry Mentorship Program Research Project)

January 2025 - Ongoing

- Evaluated the Search-R1 Reasoning RAG model to identify and address limitations in question answering.
- Integrated an LLM based retrieved information extractor to increase the model's answer accuracy by 5%.
- Proposed novel reward function for RL training to improve model's search efficiency and effectiveness.
- Managed multi-GPU LLM training on a compute cluster using VeRL and HuggingFace transformer.

MindSLM (Final Project for CS682: Neural Networks)

September 2024 - December 2024

- Procured and processed mental health counseling transcript datasets to fine-tune SLMs for private counseling.
- Fine-tuned Qwen2.5 and Llama3.2 SLMs with QLoRA, improving Rouge-L F1 scores by 61% against professional therapists' responses compared to the base models, enabling accurate and context-aware responses.
- Created a comprehensive evaluation framework with Rouge Score, Bert Score, and LLM-As-a-Judge.

JellyRec (Open Source Movie Recommendation System with 9★ on GitHub)

July 2024 - Ongoing

- Developed a movie recommendation system using collaborative filtering on the MovieLens dataset.
- Refined data filtering to achieve a 7% lower RMSE on rating prediction compared to the official MLSmall dataset, enabling accurate recommendations while keeping inference times under 5 seconds.
- Built the frontend using Svelte and implemented the backend using SvelteKit and Flask, enabling fast, real-time movie recommendations with a seamless user experience.
- Managed and resolved GitHub Issues from users and planned updates to improve recommendation accuracy.

SKILLS

Programming languages: Python, Javascript, C, C++, Java, Assembly, SQL, Snakemake

Frameworks: Pytorch, Numpy, Pandas, Matplotlib, NLTK, Huggingface, Langchain, VeRL

Technology: Git, GitHub, Docker, QEMU, GNU/Linux, AWS, Slurm, Ollama