Mahyar "Mike" Vahabi

Software Engineer

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Technical Skills

Programming Languages: C, C++, Python, JavaScript, SQL, HTML, CSS

Databases, Cloud Services & Dev. Tools: PostgreSQL, MySQL, Git, AWS (EC2, S3, Lambda, RDS)

Domain Expertise: OOP, RestAPI, Full-stack, Data Structures, Network programming, Machine learning, Databases

Languages: Farsi, English, Spanish

Education

University of California, Santa Cruz — Santa Cruz, CA

- **M.S.** in Computer Science — Sep. 2024 - Dec. 2025
- **B.S.** in Computer Science – **GPA:** 3.72 — Sep. 2020 - June 2024

Related Coursework: Artificial Intelligence, Machine Learning, Object-Oriented Programming, Data Structures & Algorithms, Cryptography, Computer Networking, Computer Systems, Database Systems

Professional Experience

AIEA Lab — Santa Cruz, CA — Aug. 2024 - Present

Research Software Engineer

- Collaborating on projects like chatbot development and real-time translation services
- Applying **NLP** to translate natural language into formal logic, mitigating hallucinations in **LLM** outputs for accuracy
- Enhancing LLM-generated content with **semantic consistency** through inference engines and ML algorithms

Baskin School of Engineering — Santa Cruz, CA — Jan. 2023 - Present

Computer Science Teaching Assistant

- Educating over **1,000** students in Data Structures & Algorithms using **C/C++**, mentoring many to secure internships
- Deploying testing scripts using **Bash** to assess student code for unit, functional, and integration tests, achieving **95%** coverage with **Valgrind** and custom tools
- Providing pseudocode to simplify complex concepts, improving students' understanding of problem-solving techniques
- Leading interactive labs that enhanced students' problem-solving and **debugging** skills

Scale AI — San Francisco, CA — June. 2023 - Sep. 2023

Software Engineer

- Contributed to the **Software Development Life Cycle** by enhancing generative AI models, leading projects with **80%** improved model accuracy
- Optimized the code generation process for **Google's Gemini**, enhancing efficiency by **70%** by deploying extensive code samples, leveraging **Python**, **C++**, **C**, **JavaScript**, and **MySQL**, achieving a peak performance metric of under **50ms**
- Constructed a chatbot response system using TensorFlow and PyTorch, achieving **95%** response accuracy
- Developed diverse coding solutions across multiple languages, leveraging manual memory management, pointer arithmetic, system programming, and **p-threads**, achieving **85%** response accuracy

Software Projects

Multi-Threaded HTTP Server — June. 2023 - Dec. 2023

- Designed a server using **socket** programming in **C** and **Python** to manage network connections and client requests
- Integrated **semaphores** for thread synchronization and mitigating race conditions, achieving **sub-20ms** response times
- Monitored performance, resolved bottlenecks, and optimized throughput, increasing server performance through **load balancing** and **caching**

Bitcoin Crypto Price Prediction — Oct. 2022 - Nov. 2022

- Devised an **RNN** model featuring **LSTM** and **GRU** layers for Bitcoin price prediction, refining normalization, scaling, and tuning, achieving **75%** accuracy
- Tuned hyperparameters using **TensorFlow**, **SKlearn**, and **Keras**, and visualized results with **Matplotlib** and **Seaborn** for deeper model analysis

Word Filtering Program inspired by "1984" by George Orwell — Sep. 2021 - Dec. 2021

- Implemented **Bloom Filters**, **Hash Tables**, and **Binary Search Trees** to build a censorship program in **C/C++** for translating 'oldspeak' to 'newspeak'
- Optimized retrieval using **Trie structures** for fast searching and auto-completion, enhancing efficiency by **75%**
- Utilized **Linked Lists** to manage dynamic lists of replacement rules for efficient memory usage, censorship, and easy updates