Mahyar "Mike" Vahabi

Graduate Software Engineer

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Technical Skills

Programming Languages: Python, C, C++, SQL, HTML, CSS, JavaScript, Java, Rust, Go
Databases & Dev. Tools: PostgreSQL, MySQL, Kubernetes, Docker, Rest API, React, AWS (Lambda, EC2, S3, CloudWatch), Linux, GitHub
Technical Fields: Software Development, Data Structures, Object-Oriented Programming, Databases, Full-stack, Web Development
Languages: English, Persian, Spanish

Education

University of California, Santa Cruz — Santa Cruz, CA
• **Master of Science** in Computer Science – **GPA:** 4.0 **Sep. 2024 - June 2026**
• **Bachelor of Science** in Computer Science – **GPA:** 3.72 **Sep. 2020 - June 2024**

Professional Experience

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

Research Software Engineer

• Leading research on **LLM** and **ML** security through configuration of cryptographic techniques to mitigate inversion attacks
• Developing protective methods beyond traditional **differential privacy**, applying gradient clipping and noise addition techniques
• Building **Python**-based tools to identify and address AI security vulnerabilities, reducing data leaks and prompt injections by 90%
• Integrating oblivious RAM (**ORAM**) techniques in **C++** to securely store and query a Retrieval-Augmented Generation (**RAG**) model, preventing data leakage with 10ms overhead

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

Computer Science Teaching Assistant

• Instructing over 1,000 students in Data Structures & Algorithms using **C/C++**, mentoring many to secure internships
• Managing a team of 15+ teaching staff by delegating tasks, mentoring, and optimizing grading workflows for accuracy and efficiency
• Deploying testing scripts using **Bash** to assess student code for unit, functional, and integration tests, achieving 100% coverage with **Valgrind** and custom tools
• Conducting 20 labs and 80 hours per quarter to strengthen students' problem-solving, programming, and debugging skills with **GDB**

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

Software Engineer Intern

• Enhanced **Gemini's** code generation accuracy to 70% by refining prompts iteratively, applying **Software Development Life Cycle** practices
• Engineered 100+ optimized solutions for prompt-response evaluation in **Python**, **C++**, **C**, **Java**, and **SQL**, achieving 15ms latency
• Performed in-depth analysis of 50+ code-related prompts, refining model training data for **Reinforcement Learning** with Human Feedback
• 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
• Constructed a queue-based architecture for sequential request processing and ensured atomicity for 1000+ concurrent threads
• Monitored performance, optimized throughput, increasing server performance through **AWS Elastic Load Balancing** and **Nginx Caching**

Bitcoin Price ML Prediction **Oct. 2022 - Nov. 2022**
• Implemented a machine learning model to predict Bitcoin price trends with a 75% accuracy using **RNN** architectures
• Executed **LSTM** and **GRU** layers to enhance forecasting accuracy and model performance in time-series and computer vision tasks
• Utilized **TensorFlow**, **PyTorch**, and **Keras** for model training, fine-tuning hyperparameters, and evaluating prediction results