

Mo Shirmohammadi

Forbes-Featured Engineer • mshirmoh@usc.edu • mohossy.com

Education

University of Southern California (USC)

B.S./M.S., Computer Science (Accelerated Program), Presidential Scholar | GPA: 3.92

Expected: B.S. Dec 2027, M.S. Jun 2029

• Relevant Coursework: Principles of Software Development, Algorithms & Theory of Computing, Discrete Methods in Computer Science, Probability Theory, Cognitive Science, Advanced Writing for Engineers

Pasadena City College (PCC)

A.S., Science, Computer Science | GPA: 3.83 | Courses: Data Structures, Linear Algebra, Multivariable Calc, Differential Equations

Experience

Founding Software Engineer, Pasadena City College

December 2024 - August 2025

- Shipped a full-stack generative AI chatbot serving 30,000+ students, handling 640+ daily queries, centralizing campus resources.
- Engineered a resilient Node.js/Express backend for OpenAI GPT-4 API integration, implementing custom rate limiting and caching that reduced response time by 50%.
- Leveraged MongoDB interaction logs for prompt iteration, boosting answer accuracy from 38% to 66%.
- Established a CI/CD pipeline with GitHub Actions, ESLint, and 50+ automated test cases across unit and integration suites, reducing deployment errors by 60% and enabling same-day feature releases.
- Deployed centralized error logging with Sentry, enabling sub-hour incident response and 99.9% uptime.
- Developed a RAG pipeline using vector embeddings and k-NN semantic search, indexing 900+ documents with sub-100ms retrieval and reducing hallucinations by 40%.
- Created agentic mode using Browserbase, Playwright, and Manus AI for automated tasks like checking real-time class availability.
- Built an intent classification layer that dynamically routes queries between agentic execution and direct LLM inference.
- Introduced cross-session memory by storing conversation summaries and injecting relevant context into prompts, enabling personalized multi-turn interactions.
- Integrated Redis for session caching and response memoization, reducing API costs by 36% and improving p95 latency.
- Designed a responsive React frontend that streamed responses in real time, rendered markdown, and displayed conversation history, which improved user engagement and reduced page-load time.
- Added student ID authentication with session persistence, enabling secure access to personalized chat history.

Verkada Systems Technician, Access Tech Security

April 2023 - Present

- Diagnosed and resolved complex hardware-software integration failures across 150+ client sites, achieving a 90% first-visit resolution rate through systematic root cause analysis.
- Configured enterprise networks (VLANs, subnets, static IPs) for cloud-based IoT connectivity, improving reliability and uptime.
- Orchestrated deployment of 30+ integrated security systems, validating API endpoints and device interoperability among cameras, access control units, and the cloud dashboard, which delivered seamless security monitoring with zero integration errors.
- Wrote Python scripts integrating Sonar, ROE, and GraphQL APIs to automate data sync across management systems.

Lead Sensei of Curriculum Engagement, Code Ninjas

January 2023 - February 2025

- Designed a parent-teacher conference web system for 80+ families and instructed 12+ camps on Python/C# game development.

Founder and CEO, Code Can Bridge Nonprofit

December 2021 - June 2023

- Taught coding to students with learning disabilities; partnered with Pasadena schools, and improved learning outcomes by 60%.
-

Projects

Founder and Lead Engineer, IRL Social App

March 2024 - January 2026

- Launched a real-time social video platform with ephemeral DMs, live presence indicators, synchronized virtual hangouts, and in-chat multiplayer games to 470+ high school beta users.
- Architected hybrid real-time layer combining Agora WebRTC (50ms voice/data) with Socket.io for presence and typing indicators.
- Programmed real-time Battle Royale game with projectile physics, distance-based damage, knockback, and shrinking storm zones.
- Implemented ephemeral messaging with Vision Camera capture, FFmpeg transcoding to H.264, view-once tracking with replay limits, sub-second screenshot detection with push alerts, and MongoDB TTL auto-expiration after 24 hours.
- Crafted Bitmoji-style avatar layer with draggable characters, dance animations, and cross-device position sync at 50ms latency.

AI-Powered Predator Detection Drone, 1st Place, 2024 HTCC Honors Conference

December 2023 - April 2024

- Fine-tuned a TensorFlow/PyTorch computer vision model on 300+ labeled images, achieving ~80% validation accuracy for real-time coyote detection to protect outdoor pets in residential areas.
 - Deployed model on a Jetson Nano for edge inference, optimizing for real-time processing while considering the drone's battery.
 - Engineered an end-to-end alert pipeline triggering WhatsApp notifications to a neighborhood group upon predator detection.
-

Skills

Languages: Python, JavaScript, TypeScript, Java, C++, C#, Swift, SQL, Bash, HTML/CSS

Technologies: React, React Native, Node.js, Express, Django, Spring Boot, MongoDB, PostgreSQL, AWS, Docker, Git, Socket.io, Redis

AI/ML: TensorFlow, PyTorch, OpenAI API, LangChain, RAG pipelines, vector embeddings, semantic search, prompt engineering