

Jashan Rahal

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EDUCATION

Bachelor of Science in Computer Science

Dec 2024

California State University Monterey Bay

- **Concentration: Software Engineering**
- **3.8 Major GPA - Dean's List:** Spring 2023, Fall 2023, Spring 2024, Fall 2024
- **Relevant Coursework:** Data Structures & Algorithms, Operating Systems, Software Engineering, Computer Architecture, Software Design, Database Management

WORK EXPERIENCE

Software Engineer I

Jan 2025- Present

Keiser (<https://www.keiser.com>)

- **Architected and shipped fleet-wide OTA update system** enabling remote firmware deployment to 100+ connected fitness machines per facility, implementing job queue architecture with retry logic and dead letter queues for fault-tolerant distribution
- Contributed to cloud migration initiative moving 70+ REST endpoints from on-premise Docker deployment to AWS-hosted backend, designing dual SDK architecture to support both local facility networks and cloud-based management with seamless failover
- Built asynchronous job processing infrastructure using BullMQ and Redis for firmware updates, data aggregation, and device state synchronization, handling thousands of concurrent connections with sub-second latency
- Debugged and resolved critical production race condition in binary protocol parsing affecting 10,000+ athletes, implementing thread-safe state management to prevent data corruption during concurrent operations
- **Optimized real-time connection handling between mobile clients and IoT devices** using WebSocket architecture and Redis pub/sub, reducing disconnection rates by 20% and improving connection recovery time

Open Source Contributor

Feb 2026

NASA

- **Resolved 68 static analysis findings** (CodeSonar/SonarQube) in the Utils/Hash component of NASA's F' flight software framework used in spacecraft missions, addressing high-severity issues including uninitialized variables and unsafe virtual function calls in constructors.
- **Collaborated with NASA maintainers** through GitHub pull requests, adhering to flight software coding standards and safety-critical development practices for mission-critical aerospace systems.

PROJECTS

CodeSense CLI (<https://www.npmjs.com/package/codesense-cli>) - 600+ downloads

- Published an NPM developer tool that generates technical documentation, README files, and code explanations from CLI commands using TypeScript/JavaScript AST analysis.
- Implemented dual-mode operation supporting both local LLM inference and cloud-based models, enabling offline usage for privacy-conscious developers.
- Designed modular architecture with plugin system for extensibility and agent-based processing pipeline for context-aware analysis

SKILLS

- **Languages:** TypeScript, JavaScript, Python, SQL, Dart, C++
- **Backend & Infrastructure:** Node.js, PostgreSQL, Redis, BullMQ, AWS (EC2, S3, Lambda), Docker, REST APIs, WebSockets
- **Distributed Systems:** Job Queues, Pub/Sub, Caching Strategies, Async Processing, State Management
- **Database:** PostgreSQL, Redis, Query Optimization, Schema Design
- **Tools:** Git, GitHub Actions, CI/CD Pipelines