SINEHAN EZHILMUTHU

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EDUCATION

University of California, Merced — Merced, CA
Bachelor of Science in Computer Science – GPA: 3.6 — *Aug. 2022 – Dec. 2025*

Relevant Coursework: Parallel Programming, Algorithms, Algorithm Design/Analysis, Operating Systems, Computer Organization, Data Structures, Discrete Mathematics, Object Oriented Programming, Database Systems, Intro to Artificial Intelligence, Full Stack Web Development

San Joaquin Delta College — Stockton, CA
Associate's in Arts and Science — *Aug. 2018 – June 2022*

SKILLS

Languages: Python, Swift, C++, Rust, SQL (Postgres), TypeScript, JavaScript, HTML/CSS, Java
Frameworks: Reactjs (Web UI), Nextjs (Full-Stack SSR), Node.js (Backend), TailwindCSS (UI Design), SwiftUI (iOS/macOS), Spring Boot (Java Backend), Tauri (Desktop App Dev)
Developer Tools: Git (Version Control), Docker (Containerization), CI/CD Pipelines, Postman (API Testing), XCode (Apple Dev), VS Code (IDE), GraphViz (Data Visualization), Ollama (Local LLM), GitHub Projects & Azure Boards (Agile Workflow)
Libraries/Other: Firebase (BaaS), Axios (API Client), ROS2 (Robotics and hardware control), Duet3D API (device control), ESP32 (basic embedded systems), Qdrant (Vector DB), Embeddings (ML Pipelines)
Testing: Pytest (Python), Jest (JS/TS), React Testing Library (UI), XCTest (SwiftUI)

EXPERIENCE

AI Engineering Intern — Aug 2025 – Dec 2025
Omron Robotics & Safety Technologies — *Pleasanton, CA*

- Collaborated with a **machine learning mentor** to design and develop **AI-driven log processing tools** that help engineers interpret and summarize complex system logs.
- Implemented core components of a **log analysis pipeline** that automated detection and grouping of recurring patterns across **100K+ log entries**.
- Integrated **machine learning models** to extract insights from raw test data, reducing manual analysis time by ~**20%.**

Software Engineering Intern — June 2025 – Aug 2025
Milano Technical Group — *Merced, CA*

- Developed internal software tooling to translate design specifications into **robot control code** used in hardware systems.
- Integrated software with **programmable controllers and embedded devices**, enabling **rapid testing** and deployment of hardware-driven workflows.
- Optimized **prototyping and validation processes**, supporting additive manufacturing setup and iterative system-level testing.
- Collaborated with mechanical and electrical teams on **software-hardware integration** and end-to-end R&D workflows.
- Worked within an **Agile development cycle**, participating in sprint planning, tracking, and iterative improvement.

Research Test Engineer — Aug 2023 – May 2024
UC Merced, School of Engineering — *Merced, CA*

- Within two weeks, contributed to UniPoll API's backend, optimizing services using **Python** and **Docker**, reducing API response time by **30%** and ensuring real-time polling for **10,000+ datasets**.
- Implemented and maintained **CI/CD pipelines** for automated testing and deployment, improving delivery consistency across development cycles.
- Wrote and executed over **100 comprehensive test cases** using **Pytest**, ensuring reliability and functionality of API endpoints, which resulted in at least **25% reduction in bugs** during production phases.

PROJECTS

Anchor | *Tauri, React, TypeScript, Rust, Swift* — Oct 2024 – Present

- Built a cross-platform desktop productivity application using **Tauri v2**, with a **React + TypeScript** frontend and a **Rust** backend.
- Designed a **session-based state machine** in Rust to manage focus workflows, including lifecycle control via typed IPC commands.
- Architected a **modular backend structure** to support future pluggable focus-monitoring tools, currently under active development.
- Prototyped early versions as a **SwiftUI mockup** to validate product direction before re-architecting the system in Tauri and Rust.

Portfolio LLM (RAG System) | *FastAPI, Qdrant, Sentence-Transformers, Gemini API* — Dec 2025 – Jan 2026

- Built a lightweight **retrieval-augmented generation (RAG)** backend that allows recruiters to ask natural-language questions about my experience and projects.
- Implemented an explicit ingestion and query pipeline including **text chunking, local embeddings**, vector search with **Qdrant**, and grounded response generation via a hosted LLM.
- Designed the system to return **source-cited answers** using stored metadata for transparency and debuggability.