Eli Perez

San Diego (Open to relocate) | eliperez0024@gmail.com | 619-565-5311

eliperez.dev | linkedin.com/in/eliperez-dev/ | github.com/eliperez-dev

Summary

Systems Software Engineer with production experience in Rust. Open-source maintainer who scaled a geospatial platform to 3,000+ users and designed custom RISC architectures. Available for full-time employment.

Experience

Lead Software Engineer & Founder | Live Website | GitHub June 2025 – Present

- Architected and led the development of a full-stack, open-source geospatial platform for animal rights, scaling to serve **3,000+** monthly users and achieving **100k+** views through social outreach.
- Engineered a high-performance RESTful API in Rust (Axum), utilizing Brotli compression and aggressive caching to deliver **56,000+** geospatial records in a **2.7MB** payload.
- Managed a global community of developers, journalists, and researchers, coordinating the verification of crowdsourced intelligence while securing seed funding from the Pollination Project.
- Built automated Python ETL pipelines using Pandas to ingest data from dozens of disparate sources, resolving schema inconsistencies and formatting errors to produce a uniform geospatial index.

Software Engineer | Fish Defender 501(c)(3) – Contract Oct 2025 – Dec 2025

- Architected serverless mapping infrastructure on Cloudflare Workers, engineered a resilient JSON API to bridge client-managed data via the Google Sheets API for real-time visualization.

Projects

4-Stage Pipelined 8-bit RISC CPU | Rust, Custom Assembly Language Live Demo | GitHub

- Designed Electron, a custom 8-bit ISA with a MIPS-inspired raw pipeline architecture, and hand-wired the implementation using Redstone digital logic gates in a simulation environment.
- Engineered a Rust toolchain (Assembler/Emulator) that performs static analysis to detect data hazards and interlocking constraints inherent to the hardware design.
- Ported the emulator to WebAssembly (WASM) and SvelteKit to provide an in-browser visual debugger and execution environment.

Nuclear Safety Telemetry System | Onsite Engineering Sprint @ Valar Atomics

- Reverse-engineered proprietary Allen Bradley tag structures by implementing a custom Rust decoder to parse undocumented EtherNet/IP data streams, bypassing standard driver limitations.
- Architected a fault-tolerant Async Rust (Tokio) backend during a high-stakes 9-hour onsite sprint, utilizing Arc<Mutex> shared state to decouple PLC polling from the API and ensure system resilience.
- Achieved **sub-10ms** latency interfacing with triple-redundant Safety PLCs to stream real-time data from neutron flux detectors and seismometers to a live visualization dashboard served with Axum.

Education

Southwestern College | Chula Vista, CA | Associate of Science in Computer Science 2024 – Present

Skills

- **Programming Languages:** Rust, Python, TypeScript, C, Assembly, WebAssembly (WASM)
- **Frameworks & Libraries:** Axum, Tokio, Shuttle, Flask, Pandas, SvelteKit
- **Infrastructure & Tools:** Cloudflare (Workers, Pages), Shuttle, PLCs (Allen Bradley), SQL, Linux, CI/CD
- **Areas of Interest:** Systems & Async Programming, Embedded Systems, Industrial Automation