

Eli Perez

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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

- Integrated a bleeding-edge, undocumented Rust EtherNet/IP crate, implementing a custom decoding layer to interpret complex PLC tag schemas where standard library definitions did not yet exist.
- Architected a high-concurrency Async Rust (Tokio) backend, utilizing Arc<Mutex> state management to decouple high-frequency PLC polling threads from the REST API, ensuring system resilience.
- Achieved real-time sub-10ms latency by optimizing the async polling runtime, bypassing overhead in the experimental driver to stream live neutron flux and seismometer data from Safety PLCs to a web dashboard.

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