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-V 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.
- Engineered a high-performance RESTful API in **Rust (Axum)**, to serve over **56,000** documented facilities to journalists, activists and researchers, deployed on Shuttle.
- Managed open-source development, collaborating with a global team of developers, securing a seed grant from the Pollination Project and crowd-funded donations from around the world.
- Developed robust Python ETL pipelines to aggregate, clean, and standardize data from dozens of disparate public sources.
- Drove project adoption through social media outreach, achieving over **100k** views, mentioned in animal rights newsletters, and gained recognition from key organizations in the non-profit sector.

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-V Inspired CPU | Rust, Custom Assembly Language Live Demo | GitHub

- Designed 'Electron 2', a custom 8-bit ISA with a 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 resolve 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 GitHub

- Reverse-engineered triple-redundant Allen Bradley Safety PLC tag structures, and implemented a custom EtherNet/IP (CIP) client and dashboard in Async Rust (Tokio) in under 9 hours.
- Achieved sub-10ms latency for real-time voltage monitoring, reading neutron flux detectors, seismometers, and control panal data via a custom type-safe Rust backend to ensure safe nuclear reactor operation.

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