

David Cruz

Seeking position in Computer Engineering for Summer 2025

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Education

B.S. in Computer Engineering

Sep 2022 - Jun 2026

California Polytechnic State University, San Luis Obispo

Systems Programming • Operating Systems • Architecture • Graphics Pipeline • Software Engineering

- Engineered a RISC-V CPU Core in **SystemVerilog** with **Vivado**
- Streamlined collaboration through structured **Git** workflows with integrated **ticket** tracking and GitHub Projects
- Implemented communication protocols (I2C, SPI, UART) on microcontrollers for hardware interfacing

Experience

Software Engineer @ JC Cobra Guard, Inc

Apr 2022 - May 2024

- Designed and maintained Linux-based cloud infrastructure for DNS, email and web hosting, implementing scalable architecture optimized for reliability while reducing operational costs
- Developed full-stack website using Nginx, **Node.js**, **React**, Next.js, and Tailwind CSS, reducing hosting costs by over 95% (20x cheaper than agency alternatives) while ensuring WCAG compliance and **responsive design**
- Implemented middleware to protect against automated bots and malicious activity, enhancing site **security** and preventing unauthorized access

FOSS Organization & Development

Jun 2017 - Present

- Collaborated with senior developers on an open-source **game engine** project utilizing **C++**, **Vulkan**, CMake and **Lua**, focusing on maintainability and high code quality standards
- Created a hardware RISC-V core, software assembler and emulator from scratch using the **Rust** programming language, demonstrating strong skill in low-level architecture, processor design, and systems programming
- Designed and implemented multiple programming languages from scratch in **Rust** and **TypeScript**, including **compilers** and **code generation** systems, with emphasis on type safety, maintainability, and simplicity
- Established and managed **GitHub** organizations with structured permission systems, implementing consistent coding standards, code review workflows, ticket management processes, and contributor guidelines to enhance **team collaboration** and code quality

Skills

Languages & Core

- **Rust**, Lua, C/C++, Java, **TypeScript**
- Compilers, Systems Programming
- Windows, **Linux**, Python
- VSCode, Vim, IntelliJ

Hardware & Architecture

- x86-64, ARM, **RISC-V**
- ISA Design, FPGA Development
- **SystemVerilog**, UVM, Icarus
- Vivado, QEMU

DevOps & Web

- Git, GitHub Actions, Docker, Figma
- Tailwind, **React**, Node.js, Solid
- Nginx, Flask, DNS, Networking
- **CI/CD**, Next.js, Express

Profile

- **First-generation** technologist with several years contributing to **open-source** projects and tech communities
- Maintain technical blog featuring project documentation and educational guides for emerging developers
- Build systems from first principles to develop deep understanding and create simplified learning resources
- Passionate about creating **developer tooling** that improves workflow efficiency and coding experience