

# Nicholas Russo

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## Summary

Software developer with 2.5 years of experience specializing in backend development and scalable API architecture using Python, Rust, and Go. Demonstrated expertise in optimizing system performance and reliability through efficient, maintainable code. Currently building AI/ML infrastructure with focus on vector databases and LLM engineering.

## Skills

**Languages:** Python (Advanced), Rust (Advanced), Go (Advanced), TypeScript (Intermediate), C (Intermediate), C++ (Intermediate)

**Currently Learning:** Mojo

**Backend/APIs:** FastAPI, Flask, Django, gRPC, Ruby on Rails

**Databases:** PostgreSQL, SQLite, MySQL, Redis, Vector Databases

**Infrastructure:** Docker, Linux (Gentoo, CoreOS, Alpine, Fedora, RHEL, Ubuntu), Kubernetes

**Cloud/DevOps:** AWS, GCP, DigitalOcean, Cloudflare, Git, GitHub Actions, Zed, Neovim, VS Code

## Experience

### Software Engineer

January 2021 – May 2023

*Omnitier, Inc.*

- Developed regression testing system using Go and Python, significantly improving code stability
- Optimized Python script performance by ~90%, reducing runtime from 45 minutes to 5 minutes by minimizing system calls
- Enhanced React frontend with new features using gRPC API and resolved critical bugs

## Projects

**OmenDB** | [github.com/omendb](https://github.com/omendb) | *Rust, Vector Database, Database Systems*

- PostgreSQL-compatible vector database implementing HNSW indexing and binary quantization. Drop-in pgvector replacement optimized for memory efficiency and query performance at scale

**Zenith** | [github.com/nijaru/zenith](https://github.com/nijaru/zenith) | *Python, Web Framework, API Design*

- Python web framework with chainable query APIs, zero-config setup, and async request handling. Built for developer experience and production performance

**sy** | [github.com/nijaru/sy](https://github.com/nijaru/sy) | *Rust, CLI Tools, Systems Programming*

- File synchronization tool with delta sync, parallel transfers, and streaming algorithms. Modern alternative to rsync built in Rust

**Kombrucha** | [github.com/nijaru/kombrucha](https://github.com/nijaru/kombrucha) | *Rust, Package Management, Developer Tools*

- Package manager with parallel downloads, dependency resolution, and improved caching. Homebrew alternative focused on speed and reliability

**Pacabot** | *Python, AI/ML, Finance*

- Trading bot with market analysis, automated strategy execution, and risk management. Real-time data processing for algorithmic trading

## Awards

**2nd Place & Ingenico Winner, Money 20/20 Las Vegas 2016** | *Team Kairos*

- Developed cross-terminal payment application with REST API for business partnerships. Built with Go and PostgreSQL, deployed on CoreOS

## Education

**42 Silicon Valley**

*Computer Science*

2018 – 2020

*Fremont, CA*

**Las Positas College**

*Computer Science*

2014 – 2015, 2016 – 2018

*Livermore, CA*

- Computer Science Club President 2016 – 2017

**Dev Bootcamp**

*Web Development*

Fall 2016 – Spring 2017

*San Francisco, CA*