

Nicholas Russo

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Summary

Backend engineer with 2.5 years of work experience building and optimizing distributed systems. Work includes performance optimization, API development, database systems, and testing infrastructure. Open source projects focus on systems programming and developer tooling.

Skills

Languages: Python (3+ years), Go (3+ years), Rust (1 year), C (1 year), C++ (1 year), JavaScript (<1 year), Mojo (<1 year)

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

Databases: PostgreSQL, SQLite, MySQL, Redis

Infrastructure: Docker, Linux (Fedora, Ubuntu, RHEL/CentOS, CoreOS, Gentoo), Kubernetes (Beginner)

Cloud Platforms: AWS, GCP, DigitalOcean, Cloudflare

Tools: Git, GitHub Actions, Zed, Neovim, mise, uv, Ghostty, Fish, ripgrep, fzf, fd, Tailscale

Experience

Software Engineer

January 2021 – May 2023

Omnitier, Inc.

- Optimized regression testing infrastructure, reducing test suite runtime by ~90% (45 min → 5 min) through filesystem optimization with `os.scandir()` and Path objects
- Built comprehensive regression testing infrastructure using Go and Python, improving code stability across distributed services
- Developed gRPC API integrations and enhanced React frontend features, maintaining full-stack service reliability

Projects

seerdb | github.com/omendb/seerdb | *Rust, Storage Engine, Database Systems*

- Production-ready storage engine with learned indexes beating RocksDB 2.47x on writes, 2.07x on reads. Implements WiscKey key-value separation achieving 4.82x better write amplification than traditional LSM trees

omendb | *Rust, Mojo, Vector Database, Database Systems*

- Vector database with embedded library (Rust + Mojo implementations) and cloud service targeting billion-scale deployments. Tiered storage architecture (RAM → SSD → S3)

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

- AI trading bot using LangGraph multi-agent system with 13 data sources including market data, SEC filings, news, and social sentiment. Real-time research with automated risk management

Aircher | github.com/nijaru/aircher | *Python, LangGraph, AI/ML*

- AI coding agent backend using LangGraph for multi-agent orchestration. Maintains working memory of codebase and task history, learns project patterns. Supports Agent Client Protocol for editor integrations

sy | github.com/nijaru/sy | *Rust, CLI Tools, Systems Programming*

- File synchronization tool in Rust implementing delta sync with streaming architecture. 2-11x faster than rsync through parallel transfers and optimization

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

March 2016 – May 2016

San Francisco, CA