

# Nicholas Russo

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## Skills

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**Languages:** Python, Go, Rust, C, C++, JavaScript

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

**Infrastructure:** Docker, Linux (Fedora, Ubuntu, RHEL/CentOS, CoreOS, Gentoo), AWS, GCP, DigitalOcean, Cloudflare

**Databases:** PostgreSQL, SQLite, MySQL, Redis, ChromaDB, DuckDB

**Tools:** Git, GitHub Actions, Zed, Ghostty, Fish

## Projects

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**seerdb** | [github.com/omendb/seerdb](https://github.com/omendb/seerdb) | *Rust, Storage Engine, Database Systems*

- LSM storage engine with ALEX learned indexes and WiscKey key-value separation. 2.5x faster writes, 2x faster reads than RocksDB with 5x lower write amplification

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

- Embedded vector database for Python. HNSW indexing with 8x compression, filtered search, and persistent storage. Server mode in development

**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](https://github.com/nijaru/aircher) | *Python, LangGraph, AI/ML*

- AI coding agent with 3-layer knowledge system (SQLite + DuckDB + ChromaDB). LangGraph multi-agent orchestration with cross-session learning. ACP-compatible

**hygrep** | [github.com/nijaru/hygrep](https://github.com/nijaru/hygrep) | *Python, Mojo, AI/ML*

- Semantic code search with neural reranking. Parallel Mojo scanner ( 20k files/sec) + ONNX inference. Language-aware context extraction, agent-ready JSON output

## Experience

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### Software Engineer

January 2021 - May 2023

*Omnitier, Inc.*

- Reduced test suite runtime by 90% (45 min to 5 min) by reducing syscall overhead in filesystem operations
- Built Python backend API and gRPC integrations for distributed services
- Developed regression testing infrastructure in Go and Python

## Awards

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### 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

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### 42 Silicon Valley

2018 - 2020

*Computer Science*

*Fremont, CA*

### Las Positas College

2014 - 2015, 2016 - 2018

*Computer Science*

*Livermore, CA*

- Computer Science Club President 2016 - 2017

### Dev Bootcamp

March 2016 - May 2016

*Web Development*

*San Francisco, CA*