

Frederico Zolio

Software Engineer · Backend, AI and Platforms

Belo Horizonte, Brazil · remote | +55 31 98548-2592 | fredzolio.dev@gmail.com
fredzol.io | linkedin.com/in/fredzolio | github.com/fredzolio

SUMMARY

Software engineer focused on backend, cloud platforms and AI agents. At IplanRio I lead a team of 6 and run services behind Rio de Janeiro's city SuperApp, written in Go and Python on Kubernetes, from design to on-call. At Vizo, the company I co-founded, I build SaaS products that already have paying customers. I work end to end: architecture, code, infrastructure as code, observability and cost.

EXPERIENCE

Senior Principal Software Engineer

Aug 2024 – present

IplanRio · Rio de Janeiro City Hall · Data Office · Remote

- Lead a team of 6 engineers and run technical hiring for the area: take-home challenges, interview scripts and evaluation.
- Top contributor to the SuperApp courses, jobs and employability API (Go, PostgreSQL, Redis), with layered authorization through Keycloak, Heimdall and Cerbos and canary releases gated by Prometheus analysis.
- Built Rio Queue, a virtual waiting room (Python, Valkey, SSE) that shields Nota Carioca and the SuperApp during traffic spikes. Protected apps only add a script tag.
- Built public-service search in Go and pgvector: full-text, embeddings and HyDE fused with RRF, cross-encoder reranking, and a full-text fallback when the model fails.
- Ran the SuperApp load test with k6: 1.1M requests in 32 minutes with zero errors, peaking at 903 req/s on the citizen data API.
- Rewrote the Nota Carioca BigQuery → Oracle load with SQL*Loader direct path. It runs 31 to 33x faster and became a production Prefect pipeline with zero-downtime table swaps.
- Root-caused a Cloud Storage cost anomaly (R\$ 128k/year in projected savings) and built Billing Guard, which shuts off runaway APIs outside business hours.
- Brought AI agents into engineering: the EAí assistant gateway in Go, the city's MCP server, an incident triage bot, and a coding-agent package for developers with spend controls in Bifrost.

Head of Engineering & Co-founder

Feb 2023 – present

Vizo · Digital products and automation · Belo Horizonte, Brazil

- Co-founded Vizo; I own architecture, infrastructure (GCP, OpenTofu) and delivery for every product.
- Alliomed, a clinic management SaaS with paying clinics: scheduling, medical records with AI drafts from the visit transcript, ICP-Brasil digital signatures, Mercado Pago payments and per-clinic isolation with PostgreSQL RLS. 350+ of my PRs merged.
- Proventus, a social security analysis platform bought by two law firms that still use it: document extraction with LangGraph and Gemini, a GoRules decision engine and a FastAPI backend.
- Sienge SaaS RPA: merged six fiscal and finance robots, previously spread across separate repos, into one multi-tenant platform on Playwright, Prefect and FastAPI. The product was sold to another company.
- Maestro: a delivery pipeline where coding agents implement, review and validate issues in staging, with a speculative merge queue and automatic revert when validation fails.
- AWS infrastructure assessment for an engineering consultancy: root cause of CPU spikes, 615 security checks, 24% of annual spend flagged as waste and a review of 111k lines of Java.

Software Engineer

Oct 2025 – Sep 2026

Freelance · Contract projects · Remote

- PLANEHAB Nosso Bairro (FDTE for Bahia's Urban Development Secretariat): a gamified public consultation platform on housing, live in production. I moved the backend to Hono, Drizzle and PostgreSQL and built facilitator-controlled sessions, offline sync and deploys with automatic rollback.
- Conecta Solar (Revolusolar): public showcase of solar installers trained by the nonprofit, with an admin panel, built on Next.js, Hono and PostgreSQL behind Caddy.
- Vardis and LivinHub: data platform architecture support and a monorepo restructure.

Partner

Dec 2025 – Jun 2026

New Data Company · Data and AI products (company closed) · Remote

- Built NDC Nexus, an agent orchestrator in Elixir/OTP with Jido, Oban and pgvector memory, where every external action waits for human approval.
- Built a WhatsApp group monitor with voice note transcription and narrative detection (FastAPI, Celery, Baileys, Gemini) and the company's internal ERP (Fastify, Prisma, PostgreSQL).

Data Specialist

Dec 2023 – Jul 2025

Tripla · Information security · Belo Horizonte, Brazil

- Supported clients and internal teams on information security, writing policies, procedures, reports and technical documentation aligned with ISO 27001 and ISO 27002.
- Used Python to analyze data and logs for security work.

SELECTED PROJECTS

Rio Queue · IplanRio in production · 2026
Python · FastAPI · Granian · Valkey · SSE · TypeScript · esbuild
Rate- and cap-based admission with Valkey sorted sets, live position over SSE, pause and block modes and a staff bypass.
Protects a Next.js app on the same domain and Nota Carioca (legacy ASP.NET) across domains.

Public service search and recommendations · IplanRio in production · 2025–2026
Go · Gin · PostgreSQL · pgvector · Redis · Vertex AI · Gemini
Portuguese full-text, embeddings and HyDE fused with RRF, cross-encoder reranking and a graceful fall back to full-text when the model is slow. Profile-based recommendations across 6 dimensions. 519 req/s peak with zero errors under load.

Alliomed · Vizo in production · 2026
TypeScript · Next.js · React · Drizzle · PostgreSQL · Redis · Vertex AI
Multi-tenant with forced PostgreSQL RLS, AI record drafts from visit transcripts, ICP-Brasil signatures, Mercado Pago and health insurance (TUSS/SIGTAP). Per-seat billing with an AI allowance and a predictive usage gate.

Maestro, a coding agent delivery pipeline · Vizo internal · 2026
Python · SQLite · systemd · Telegram · GitHub Actions · OpenCode · Terraform
Python daemon with SQLite state and a transactional outbox, intent recorded before irreversible effects, a speculative merge queue, SHA-checked staging validation and automatic reverts. It ships Alliomed today.

PLANEHAB Nosso Bairro · Freelance live · 2026
TypeScript · React · Vite · dnd-kit · Canvas · Hono · Drizzle
Gamified public consultation for Bahia's housing secretariat. Hono, Drizzle and PostgreSQL backend with transactional session gates, offline sync for poor connections and atomic deploys with rollback.

Jungle Wallet · Personal open source · 2026
Go · PostgreSQL · SQS · SNS · Keycloak · Terraform · k6
Ledger invariants enforced in PostgreSQL (deferrable constraint trigger), RFC 8785 idempotency across HTTP and SQS FIFO, an ordered outbox with fencing tokens and 10-gate CI with signed images. 232 req/s on a 2 vCPU VM.
Case studies and 24 more projects at fredzol.io

SPEAKING AND HIRING

- AI at work: awareness, cost and judgment · IplanRio Insights Hub, Aug 2026.
- I run technical hiring for my area at IplanRio. I write the take-home challenges (Go backend, full-stack, QA and senior .NET), including a working replica of a legacy system with millions of records and real planted failures, so candidates are judged on the kind of problem they'll actually face.

EARLIER EXPERIENCE

Commit Jr. · Game Developer & Sales Analyst Sep 2023 – Mar 2024
Unity and C# games for clients, plus sales proposals and negotiation.

CodeLife · Web Developer Apr 2023 – Jul 2023
Features, fixes and improvements on the project's web app.

EDUCATION

B.Eng. in Computer Engineering · CEFET-MG 2023–2026 · completed
Associate degree in Data Science · GRAN 2025 · completed
Courses and certifications: Cybersecurity Specialist (DIO, 2023–2024); Full Stack Specialist (Flutter & AdonisJS); Full Stack JavaScript (OneBitCode, 2020); Introduction to Cybersecurity (Cisco); Cyber Threat Management (Cisco); Cybersecurity Awareness (CAPC); International English Language Fellowship Program.

SKILLS

Backend and data: Go, Python, TypeScript, SQL, Elixir, FastAPI, Gin, Hono, Node.js, Phoenix, PostgreSQL, pgvector, Redis/Valkey, MongoDB, RabbitMQ, BigQuery, Oracle, dbt, Prefect
AI and agents: LLMs (Gemini, Claude), MCP, LangGraph, Jido, Embeddings, Hybrid search (RRF, HyDE, reranking), Evals, Speech-to-Text, Bifrost, Playwright
Cloud and platform: GCP, AWS, Kubernetes/GKE, Istio, Argo CD, Argo Rollouts, Terraform/OpenTofu, GitHub Actions, OpenTelemetry, Prometheus, Grafana, k6, Docker, Linux
Security and identity: OAuth 2.0/OIDC, PKCE (gov.br), Keycloak, Cerbos, JWT, SOPS, Workload Identity Federation, ISO 27001/27002
Product and frontend: React, Next.js, Tailwind CSS, Flutter/Dart

LANGUAGES

Portuguese (native) · English (full professional proficiency) · Spanish (limited working proficiency)