

# CAIO VILQUER CARVALHO

FULL STACK DEVELOPMENT | JAVA | NODE.JS | REACT

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## SUMMARY

Computer Engineering student at the Polytechnic School of the University of São Paulo (Poli-USP), with hands-on experience in full stack projects. Develops APIs in Java/Kotlin with Spring Boot and Node.js/TypeScript with NestJS, as well as interfaces in React and Angular. Experience with RAG using PostgreSQL/pgvector, LLM integrations, authentication and authorization, automated testing, Docker, and CI. Seeking software development internships or junior full stack developer roles.

## EDUCATION

### B.Sc. in Computer Engineering | Polytechnic School, University of São Paulo (Poli-USP)

02/2025 - 12/2029 (expected graduation)

## SKILLS

**Backend & AI:** Java, Kotlin, Spring Boot, Spring Security, Spring Data JPA, Node.js, TypeScript, NestJS, REST APIs, RAG, OpenAI Responses API, Structured Outputs, and embeddings

**Frontend:** React 19, Angular, TypeScript, Tailwind CSS, Vite, TanStack Query, Recharts, and Framer Motion

**Data:** PostgreSQL, pgvector, MySQL, JPA/Hibernate, Prisma, Flyway, full-text search, and relational modeling

**Testing & infrastructure:** JUnit 5, Mockito, MockMvc, Testcontainers, LLM evals, Docker, Docker Compose, GitHub Actions, Git, and Linux

**Architecture & security:** modular and hexagonal architecture, Ports & Adapters, transactional outbox, idempotency, and prompt injection testing

**Languages:** Intermediate English - technical documentation reading and written communication

## SELECTED PROJECTS

### VIAZIO | Explainable travel recommendations

03/2026 - 07/2026 | Java 21 | Spring Boot | React 19 | TypeScript | Demo: [viazio.vilquer.dev](https://viazio.vilquer.dev) | Code: [github.com/caiovilquer/viazio](https://github.com/caiovilquer/viazio)

- Developed a full stack application to recommend and compare short-trip destinations by calendar, weather, estimated cost, distance, and local context; modeled an explainable score that presents each recommendation factor.
- Structured a versioned REST API in Java 21 and Spring Boot, separating scoring, filters, persistence, cache, and integrations; connected Nager.Date, Open-Meteo, World Bank, AwesomeAPI, and Wikipedia.
- Versioned the PostgreSQL schema with Flyway and adopted per-source refresh and caching; applied retry, circuit breaker, and bulkhead with Resilience4j, rate limiting with Bucket4j, traceId, and Micrometer/Prometheus metrics.
- Built the frontend in React 19 and TypeScript with Vite, Tailwind CSS, TanStack Query, and Framer Motion, including profile-based search, destination comparison, favorites, and score breakdown.
- Containerized the application with Docker Compose, documented the API with OpenAPI/Swagger, configured CI in GitHub Actions, and maintained 250+ backend tests with no network dependency.

### POLIATLETAS | Poli-USP track and field team management

08/2025 - Present (MVP in 03/2026) | NestJS | React | PostgreSQL | Prisma | Demo: [poliatletas.com.br](https://poliatletas.com.br)

- Developed a full stack system to manage athletes, competitions, events, results, rankings, records, and operations for the Poli-USP track and field team dashboard.
- Structured the NestJS backend with Fastify and Ports & Adapters, separating domain, use cases, and persistence; modeled sports entities in PostgreSQL with Prisma.
- Implemented ranking rules and record validation by event, category, gender, mark, and competition, plus batch Excel/CSV imports with validation and consistent persistence.
- Secured administrative operations with JWT, RBAC, and custom guards; built the interface and dashboards in React, Tailwind CSS, and Recharts to visualize athletes, results, rankings, and indicators.

### ROTINA PET | Pet care management with AI assistant and RAG

05/2025 - Present | Kotlin | Spring Boot | Angular | PostgreSQL + pgvector | OpenAI | Demo: [rotinapet.vilquer.dev](https://rotinapet.vilquer.dev) | Backend:

[github.com/caiovilquer/rotina-pet](https://github.com/caiovilquer/rotina-pet) | Frontend: [github.com/caiovilquer/rotina-pet-front](https://github.com/caiovilquer/rotina-pet-front)

- Evolved the Kotlin/Spring Boot API into a 7-module Gradle hexagonal architecture, with JWT, family/role-based authorization, and JPA/Hibernate persistence using Value Objects.
- Implemented hybrid RAG in PostgreSQL (PT-BR full-text + pgvector) with Reciprocal Rank Fusion and authorization before ranking; responses cite retrieved evidence and abstain when unsupported.
- Built asynchronous indexing with a transactional outbox, FOR UPDATE SKIP LOCKED, retry/dead letter, chunking, batch embeddings, and atomic swap; embedding version changes trigger reindexing.
- Integrated OpenAI Responses API with Structured Outputs/JSON Schema, human confirmation, and idempotency; created LLM evals in CI (Recall@5 ≥95%, citations ≥98%, abstention ≥95%), prompt injection tests, and Testcontainers/pgvector.