João Gabriel de Barros Rocha

Software Engineer · Backend / Full Stack

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Summary

Backend-focused software engineer with 4+ years building production web applications. Currently the sole backend and infrastructure engineer at Property Guys, owning a Python/FastAPI service and PostgreSQL database behind 100,000+ listings: cut page load time by 84%, hosting costs by ~75%, and closed critical security vulnerabilities. Full-stack experience with React/TypeScript, Java/Spring Boot and event-driven systems (Kafka). BSc Computer Engineering, Dec 2026. English C2.

Technical Skills

Languages: Python, TypeScript, JavaScript, Java, SQL, Kotlin

Backend: FastAPI, Flask, Spring Boot, Jakarta EE (JPA), REST APIs, WebSockets, Apache Kafka, Event-Driven Architecture, Microservices

Databases: PostgreSQL (schema design, indexing, query optimization, PostGIS), MySQL, Redis

Frontend: React, Vue.js, Angular, HTML/CSS

Infrastructure: Docker, Docker Compose, Linux, Nginx, GitHub Actions, GitLab CI/CD, Azure, Hetzner, Google Cloud Run, Cloudflare

Testing & Practices: Pytest, E2E testing, code review, application security, on-call/incident response, Scrum

Integrations & AI: Stripe, Mapbox, LLM APIs (Claude, GPT), Playwright, Scrapy, computer vision

Professional Experience

Property Guys **Mar 2026 – Present**

Back-end Software Engineer (Contract) *Remote, Spain*

- Sole backend and infrastructure engineer at a Spanish proptech startup whose production real-estate platform has 100,000+ listings aggregated from ~1,000 agency websites; own the FastAPI REST API, crawlers, servers and deployments in a remote, English-speaking Scrum team.
- Cut homepage load time by 84% and brought search to ~250 ms per page by adding B-tree and GiST spatial indexes, materialized views, fixing N+1 queries and moving ranking logic into SQL.
- Migrated production from Azure to Hetzner (servers, PostgreSQL, DNS, network security), reducing hosting costs by ~75%.
- Refactored the inherited monolith into Router-Service-Repository layers and fixed SQL injection, account-takeover and user-enumeration vulnerabilities.
- Built the Stripe subscription flow end to end (checkout, plans, billing portal, webhooks) and integrated Mapbox geocoding and LLM APIs for listing descriptions.
- Introduced protected branches, PR reviews, Pytest unit tests, daily DB backups and GitHub Actions CI/CD with automatic rollback when integration tests fail.
- Consolidated two crawler systems (a Scrapy pipeline and ~65 unversioned cron jobs) into one versioned repo with a shared DB write contract and automated deploys; added data-quality guards: sold-listing detection, Playwright price recovery, and cross-agency duplicate detection via perceptual hashing (pHash).

Software Engineering Practices Laboratory (LabES), UFES **Aug 2023 – Mar 2026**

Junior Software Engineer *Vitória, Brazil*

- Built ES+ Criativo and HUB ES+, production web platforms for the Espírito Santo State Secretariat of Culture that have supported 1,400+ events.
- Designed the relational data model and implemented backend services and web UI in Java (Jakarta EE, JPA, JSF), then led the migration to PHP/WordPress, writing custom plugins for features outside the core.
- Shipped the core event lifecycle: event and venue requests, registration with cancellation and waitlist, attendance confirmation, and event recommendations, plus role-based authentication and authorization.
- Built internal tools for staff: scheduling, configurable document generation (attendance lists, certificates) and reports on registrations, cancellations and waitlists.
- Served as on-call engineer for production incidents and led delivery meetings with government stakeholders, turning their needs into technical specifications.

Vixteam Consultoria & Sistemas **Dec 2021 – Feb 2023**
Software Development Intern *Vitória, Brazil*

- Rebuilt the end-to-end test suite for Team Audit, an audit-management web platform, after a UI redesign broke the legacy XPath-based tests; replaced brittle XPath selectors with stable element IDs and, with Protractor and TypeScript, covered nearly all modules and their cross-module data flows, restoring regression testing before each release.
- Fixed bugs across the full stack: Angular/TypeScript frontend, Spring Boot services and REST APIs.

Projects

Here To Slay, Online Multiplayer Card Game **2025 – 2026**
Java 21, Apache Kafka, Kafka Streams, React, TypeScript, Electron, Docker, Nginx *github.com/JoaoGBarros/HereToSlay*

- Shipped a desktop multiplayer card game backed by Java microservices (WebSocket gateway, lobby, game engine) that communicate only through Apache Kafka; matches are partitioned by ID across engine replicas and lobby state is rebuilt from compacted topics on restart.
- Load-tested the production server (1 vCPU, 2 GB) with a custom WebSocket load generator: it sustains ~100 concurrent matches (200 players) at ~200 ms median latency; the test also surfaced a concurrency bug in lobby replication, which I fixed.
- Built a rules engine where each card effect is a pausable script of steps, supporting multi-step player choices across the full deck, plus a solo mode against bots that score their moves.
- Built a Kafka Streams service (DSL, Processor API, time windows) that detects 10 in-game patterns in real time without touching the match flow.
- Wrote a 10-part technical blog series on the project's architecture and design decisions (joaogbarros.pages.dev).

CaLMo, Causal Loop Diagram Modeler (Best Paper, ERI-ES 2026) **2026**
Vue.js, Python (Flask), PostgreSQL, Kafka, WebSockets *dev.nemo.inf.ufes.br/calmo*

- Added real-time collaborative editing: WebSocket sync (Flask-SocketIO) with a Kafka broker ordering every change and recording per-diagram edit history; extended the REST API and PostgreSQL schema.
- Built an interactive Vue.js graphical editor with archetype detection and JSON/CSV/XMILE import/export.

CT9, Academic Management Platform **2024**
Java, Spring Boot, PostgreSQL, Docker, Google Cloud Run *github.com/JoaoGBarros/CT9-Backend*

- Designed the PostgreSQL schema and a REST API in Spring Boot with role-based authentication, serving an Angular web app and a Kotlin Android app.

Education

Federal University of Espírito Santo (UFES) **Expected December 2026**
BSc in Computer Engineering *Vitória, Brazil*

Awards & Publications

Best Paper Award, ERI-ES 2026: "Evolving CaLMo to Enhance Causal Loop Diagram Modeling" (first author).

Languages

Portuguese (Native) | English (C2): Cambridge C1 Advanced (CAE), immersion at ILAC Vancouver, Canada

Leadership

IT Academic Center, UFES **Aug 2023 – Nov 2024**
Student Ombudsman Coordinator *Vitória, Brazil*

- Elected to represent 500+ Computer Science and Engineering students; co-organized the 9th Regional School of Informatics (SBC) for 120+ attendees.