Ádilla Gomes

Software Engineer · Back-end & AI

adillarobertagomespereira@gmail.com · byadilla.vercel.app · linkedin.com/in/adilla-gomes · github.com/Adilla-rgp · São Luís, Brazil

SUMMARY

Software developer and researcher in back-end and applied AI. At TeleMídia Lab (UFMA), I helped build Cosmo from scratch, a programming-exercise platform used by university students, and I develop the AI tutor agents integrated into it: a multi-agent architecture in LangGraph, a self-hosted open-source LLM, and a similarity cache that recovered 96.85% of errors across 16,850 real submissions. I combine research rigor with software running in production for real users.

EDUCATION

B.Sc. in Computer Science — Federal University of Maranhão (UFMA) Mar 2024 – Dec 2027

Technical Diploma in Information Technology — Federal Institute of Maranhão (IFMA) Jan 2020 – Dec 2022

CERTIFICATIONS & COURSES

AWS Certified Cloud Practitioner — Amazon Web Services (in preparation) In progress

Data Science Program (online) — GCI World, University of Tokyo Sep 2026 – Present

EXPERIENCE

Software and AI Developer Aug 2024 – Present

TeleMídia Lab, UFMA

- Helped build Cosmo from scratch, a programming-exercise platform: architecture, code and database, including the migration from a monolith to microservices with Clean Architecture (Node.js, TypeScript, Prisma, PostgreSQL, Next.js).
- Built end to end and shipped to production Gallifrey, Cosmo's Python missions microservice, with React on the front end and Node.js, TypeScript, Prisma and PostgreSQL on the back end.
- Built the League, a gamified weekly ranking with per-semester history, and led its delivery from staging to production.
- Configure and manage the platform's Linux servers: service deployment and hosting of the language model used by the agents.

Undergraduate Researcher (PIBIC) — Intelligent Tutor Agents Aug 2025 – Aug 2026

Federal University of Maranhão

- Built Cosmo's tutor agents as a multi-agent system in LangGraph, with a supervisor node, syntax, logic and context agents, typed state and per student-exercise memory, exposed through a FastAPI API.
- Hosted and served open-source LLMs (Llama and Qwen) on the lab's server; the agents guide students with progressive hints without giving away the solution.
- Implemented a case-based cache (MD5 for exact matches, Jaccard for similarity, 0.85 threshold) that recovered 96.85% of errors across 16,850 real student submissions, reducing calls to the model.
- Found that Jaccard ignores token order ("Expected True got False" and "Expected False got True" tie at 1.0) and built an Expected/Got field check that blocks these false positives.
- Ran the evaluation on anonymized student data and the user validation protocol (Likert + TAM questionnaire).

Undergraduate Researcher (PIBITI) — Educational Recommender System Aug 2024 – Aug 2025

Federal University of Maranhão

- Developed an educational recommender system combining metaheuristics (evolutionary algorithms) with BERT4Rec, a Transformer-based model, to build customizable study paths.
- Ran the full model lifecycle, from data exploration and preparation to training, tuning and evaluation, using two Codeforces datasets (about 1 million and 14 million records) and an in-house dataset of about 20,000 UFMA student records.
- Ran tests with real users, improving engagement and content comprehension.

Teaching Assistant, Algorithms I Mar 2025 – Aug 2025

Federal University of Maranhão

- Supported 40 students in Algorithms I, contributing to a 30% increase in the class average.

PROJECTS

Meridiano — Group trip planner | Python, FastAPI, PostgreSQL, React, TypeScript

- Decision engine that picks the fairest plan for the group: hard limits rule out infeasible plans and the score blends the average and the minimum satisfaction, with a configurable weight. Deterministic and covered by tests.
- Each person's budget kept confidential, enforced by tests that walk every API route as each user role, in CI against a real PostgreSQL.
- Rule-based free-text parsing with an optional LLM and fallback, evaluated on a held-out test set. Live demo at meridiano2.vercel.app.

Agent-Driven Development | context engineering, subagents

- Structured the development of Cosmo's microservices with coding agents: 18 context files by area and subagents specialized in implementation, architecture review and database review, delivering a complete microservice (back and front end) in about 4 days.

Financial Document Extraction with LLMs | Python, Gemini

- Designed an ingestion, chunking and summarization pipeline for Brazilian SEC (CVM) filings on real estate funds, with structured JSON output.

Histoclick — Oral pathology atlas | React Native, Expo

- Sole developer, in a 7-person project, of a published mobile app for dental education with interactive microscope slides (zoom and hotspots), search and filters.

Predictive Model — GCI World, University of Tokyo | Python, pandas, scikit-learn

- Machine learning model for the program's predictive competition, with a proposed business application.

LEADERSHIP

Director of Education — Dacomp, Computer Science Student Association Jan 2025 – Present

- Organized technical events for over 200 students and built a library of accessible learning materials.
- Created certified short courses on programming, Git and GitHub, C and data structures.

SKILLS

AI and LLMs: LangGraph, multi-agent orchestration, self-hosted open-source LLMs (Llama, Qwen), commercial LLM APIs, prompt and context engineering, RAG, embeddings, tool calling, structured outputs (JSON), Transformers (BERT4Rec), Hugging Face, NLTK

Back end and data: Python, TypeScript, JavaScript, Java, SQL, FastAPI, Node.js, Prisma, SQLAlchemy, PostgreSQL, pandas, dbt, Power BI

Front end: React, Next.js, Tailwind CSS

Infrastructure: Linux servers, service deployment, LLM hosting and serving, microservices, Git, GitHub, CI with GitHub Actions

Languages: Portuguese (native), English (intermediate), French (basic)