

ALONSO RÍOS GUERRA

Computer Engineer | Backend | Applied AI | Business

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PROFILE

Computer Engineering graduate with experience in Python backend development and applied AI: machine learning models, AI agents with tool use, LLM fine-tuning, REST APIs, Docker and CI/CD. Passionate about the intersection of technology and business, I build software that solves concrete problems for its users. Finance and investing are also among my main interests. Autonomous, analytical and team-oriented; I enjoy team sports and team video games.

PROFESSIONAL EXPERIENCE

Cyberdefense Junior Engineer – Indra Sep 2026 – Present
Madrid, Spain

PROJECTS

ChurnAnchor – Bachelor's Thesis: Customer Retention with ML and AI Agents 2026
Python, FastAPI, LightGBM, SHAP, Google Gemini, SQLAlchemy, Docker, pytest | Demo: youtube.com/watch?v=HZxAt6nJWvE

- Built a system that predicts which telecom customers are likely to leave (LightGBM, 7,043 customers), explains each prediction with SHAP and turns it into retention actions.
- Designed four Gemini agents (recommender, analyst, alert writer and chat agent) with custom orchestration in Python, without LangChain. The chat agent can chain tools over the live system and has a catalog of 9 tools; for example, it can find a customer and generate their retention plan.
- Developed a FastAPI backend with 18 REST routes, a 6-view dashboard, scheduled batch runs and PDF reports, deployed with Docker Compose and covered by 194 automated tests.

NewsRadar – Live News Dashboard with Alerts
Python, FastAPI, Elasticsearch, PostgreSQL, Docker, GitHub Actions

- Built a multi-container architecture (API, worker, PostgreSQL, Elasticsearch, MailHog) that starts with a single command.
- Implemented a worker that ingests RSS feeds every 60 seconds and triggers configurable alerts with email notifications, plus a dashboard with KPIs and a word cloud.
- Set up CI/CD with GitHub Actions, reaching 78% test coverage, and load tests with Locust.

Java Test Suggester with a Fine-Tuned LLM
Python, Hugging Face, FastAPI, Next.js, Qwen2.5-Coder

- Fine-tuned a MiniLM model on 700k pairs of Java methods and their unit tests to suggest reusable tests for a given method.
- Built a full-stack app (FastAPI and Next.js) that returns the top 5 reusable tests with a code snippet.
- Integrated Qwen2.5-Coder to generate new unit tests from scratch.

EDUCATION

BSc in Computer Engineering – Universidad Carlos III de Madrid 2022 – 2026
Technological Baccalaureate – Luyferivas 2020 – 2022
Award for highest university entrance exam (EBAU) grades at the school, 2022

SKILLS

Programming: Python, C, C++, JavaScript, R, SQL, RISC-V Assembly
AI / ML: AI agents, LLM fine-tuning, LightGBM, SHAP, scikit-learn, pandas, Hugging Face
Web and APIs: FastAPI, Flask, REST APIs, Node.js, Next.js, HTML/CSS
Cloud and DevOps: Docker, Google Cloud, CI/CD, GitHub Actions, pytest, Locust
Data: SQL, NoSQL, PostgreSQL, Elasticsearch, SQLAlchemy
Tools: Linux, Git/GitHub, n8n (automation)

SOFT SKILLS

- Product and business mindset
- Critical thinking and problem solving
- Effective communication
- Teamwork
- Autonomy
- Creativity

LANGUAGES

Spanish: Native | English: C1