Diego De Pablo

Bioinformatics Engineer | Software, Infrastructure & Data Science

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Professional Summary

B.Sc. in Health Engineering (Bioinformatics) and M.Sc. student in Computer Engineering. Specialized in backend engineering, data architectures, distributed systems, and applied AI, with experience in real-time telemetry and edge devices. Focused on delivering technical rigor, scalability, and continuous learning to high-impact projects.

Professional Experience

Software Engineer, Khaos Research — Sep 2025 – Present

R&D on European federated data spaces (SEDIA | Gaia-X)

- Architected and developed the Federated Data Space Ecosystem (EDAAN): multi-format metadata extraction into JSON-LD (DCAT-AP) and hybrid vector search (Qdrant + Elasticsearch) with AI agents.
- Developed the 2-phase platform AgriVision & AgriFed: data-centric image curation (FiftyOne) and federated learning across agricultural nodes using Flower/PyTorch.
- Reduced Sentinel-2 satellite imagery processing time by 80% (LandCoverPy) designing a distributed pipeline (tile/season sharding) orchestrated with Dask.

Full-Stack Developer, mSurgery — Mar 2025 – Jul 2025

Medical telemetry platforms and real-time surgical digital twins

- Led the frontend migration to **Svelte 5**, adopting the reactive runes paradigm.
- Delivered technical demonstrations and presentations in English to international investors and industry committees at the National Digital Content Hub.

Junior Software Engineer, T&B Company Group — Jun 2021 – Dec 2021

Corporate platform modernization toward REST microservices

- Refactored legacy modules in Java and Angular toward decoupled architectures.
- Designed standard interface contracts with **OpenAPI / Swagger** and documented REST microservices to accelerate frontend-backend team integration.

Selected Technical Projects

diegodepablo.is-a.dev/projects

Biomedical Telemonitoring IoT Wristband (B.Sc. Thesis)

Stack: C++, FreeRTOS, ESP32, MQTT, FastAPI, TimescaleDB, Docker

- End-to-end telemonitoring prototype: multithreaded ESP32 firmware for vital signs via photoplethysmography (pulse and SpO2) and fall detection algorithm using MPU-6050 accelerometer.
- Wireless synchronization pipeline over MQTT to a FastAPI backend and TimescaleDB with a real-time web dashboard. **Grade:** 10/10 with Honors.

EdgeCardio-LoRA: Efficient Edge AI for ECG Diagnostics

Stack: PyTorch, PEFT (LoRA), ONNX INT8, FastAPI, DVC, MLflow

- Edge AI arrhythmia diagnostic framework (MIT-BIH): 1D-CNN with patient-specific LoRA calibration ($<$100 KB) and INT8 quantization on ONNX Runtime ($<$1 ms latency, $<$35 MB RAM).

Education

M.Sc. in Computer Engineering | *University of Malaga* — 2026 – Present

B.Sc. in Health Engineering (Bioinformatics Specialization) | *University of Malaga* — Sep 2021 – Jul 2025

GPA: **7.96/10**. Honors in *B.Sc. Thesis (10/10)*, *Programming Fundamentals*, *Intelligent Systems*, and *Bioinformatics Projects*.

Technical Skills & Languages

Programming Languages: Python, C/C++, JavaScript, TypeScript, C#, SQL, Java, Bash, R.

Backend & Architecture: FastAPI, REST Microservices, Dask, OpenAPI / Swagger, Pydantic, Concurrency (AsyncIO), Node.js.

Databases & Search: PostgreSQL, TimescaleDB, Elasticsearch, Qdrant (Vector DB), Redis.

AI, DevOps & Systems: Pydantic AI, LangChain, RAG / Embeddings, LLM Agents, PyTorch, Docker, Kubernetes, Helm, Argo CD, CI/CD, Linux.

Frontend & UI: React, Svelte 5, Next.js, HTML5, CSS, Tailwind CSS.

Languages: Spanish (Native) · **English** (B2 Professional).