Matías Agelvis

Software Engineer · Bordeaux, France

+33 7 65 65 54 73 · matiasagelvis@gmail.com

matiasagelvis.com · GitHub · LinkedIn

SUMMARY

Software engineer and physicist specializing in Python backend development, API design, data processing, and optimization. Combines production backend experience — FastAPI, MySQL, Docker, RabbitMQ — with a strong foundation in mathematical modeling and discrete optimization.

EXPERIENCE

Margaux Systems — Founder, Operations Research

Mar 2026 – Present

- Independent R&D in operations research: scheduling and production-planning models in Python and MiniZinc, documented as published case studies; direct outbound prospecting to manufacturers.

SNAPP' — Python Backend Engineer (Contractor)

Feb 2025 – Mar 2026

- Took over a Spot FX price feed (FIX 4.2 over WebSocket, 56 currency pairs) where neither the inherited integration nor a vendor's rewrite attempt was salvageable, and rebuilt it against the protocol spec: codec, session lifecycle, reconnect-with-resubscription, price normalization. Single-threaded async, so message ordering stays deterministic; the feed recovers from a dropped connection on its own.
- Consolidated the access control of a banking API into one dependency: session validity, permissions (JWT scopes and DB authorizations), root perimeter, individual identity, 2FA certification and read-only state — driven by the `action:domain:privilege` code each route declares. Adding a route becomes a declaration, not a special case.
- Built 200+ REST endpoints (FastAPI, SQLAlchemy, Pydantic) and the RabbitMQ/RPC services to external banking systems, across three MySQL databases with Alembic migrations and a pytest suite.
- Co-built the request-processing engine: typed workflows, audit trail, documents, and internal messaging.

SIAL — Laboratory Technician

Mar 2024 – Mar 2025

- Laboratory testing, sample preparation, and experimental data management.

Independent Developer

Jul 2019 – Mar 2024

- Web applications then software tools, self-directed; several are listed under Selected Projects.

RENYT Tech — Frontend Developer

Mar 2022 – Oct 2022

- Web application features with React, Next.js, TypeScript, and Chakra UI.

EDUCATION

Universidad de los Andes — B.Sc. Physics (cum laude)

Mérida, Venezuela — 2018

Background in mathematical modeling and computational methods; moved into software engineering through 70+ self-directed courses in algorithms, architecture, compilers, discrete optimization, and machine learning.

Research Assistant — Nonlinear Dynamics Group (2017–2018): data analysis, literature reviews, and publications.

SKILLS

Programming languages: Python, SQL, JavaScript

Backend: FastAPI, asynchronous Python, REST APIs, RabbitMQ, SQLAlchemy, Alembic

Databases & infrastructure: MySQL, Docker, Git, Linux

Optimization: MiniZinc, discrete optimization, mathematical modeling, algorithms

Spoken languages: French (fluent), English (bilingual), Spanish (native)

Work authorization: France — full right to work, no employer sponsorship required

SELECTED PROJECTS

Starisk — Course ratings recomputed from the most-upvoted reviews: dependency-free Python crawler and scorer, vote weighting by square root, calibrated against a human ranking ($\rho = 0.70$ vs 0.42). 426 courses, Astro site.

Significado Total — Semiotics archive of 2,709 cards: extraction pipeline (ODT → DOCX → text, card-boundary and footnote detection), automatic tagging via zero-shot NLI and multilingual embeddings, static SvelteKit site with full-text search.