

ABEL GARCÍA RUBIO

Senior Backend Engineer | Python | Distributed Systems | Cloud

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Professional Summary

- Senior Backend Engineer with 8+ years of experience designing scalable architectures for real-time data pipelines, distributed systems, and cloud-native applications. Strong background in Python, FastAPI, Docker, Kubernetes, and AWS. Passionate about building high-performance APIs and back-end services to support machine learning and data-intensive applications.
- I combine a scientific background in physics and mathematics with strong software engineering principles (SOLID, TDD, DevSecOps).
- I focus on continuous improvement and automation through CI/CD pipelines and observability.

Technical Skills

- **Backend:** Python (Django, FastAPI), Cython, C++, C#, Matlab, R
- **Database:** PostgreSQL, MySQL, MongoDB, ElasticSearch
- **Cloud:** Private Cloud (self-managed), AWS (EC2, S3, Lambda)
- **Frontend:** Angular, React, TypeScript, JavaScript, Node, HTML, SCSS
- **Infrastructure:** Docker, Kubernetes, RabbitMQ, Kafka, Keycloak
- **Methodologies:** SOLID, TDD, CI/CD
- **Tools:** Git, GitHub/GitLab, SonarQube, Fortify

Professional Experience

- › **Santander Bank S.A. / NovaQuality** Innsbruck, Austria
 - ▶ **Senior Python developer** Feb 2024 - Present
 - Optimized high-performance APIs, reducing latency by 25%, supporting real-time data services at scale, reducing technical debt by leveraging SonarQube and applying SOLID principles.
 - Deployed microservices architecture with Python and FastAPI and streamlining backend processes.
- › **Brainy** Zaragoza, Spain
 - ▶ **Senior Backend developer** Apr 2023 - Feb 2024
 - Implemented SonarQube checks into CI pipeline to enforce code quality gates and eliminate code smells proactively.
 - Engineered CI/CD workflows in GitLab, reducing deployment time from 1 hour to 15 minutes.
 - Connected Keycloak as an identity provider across microservices, implementing OAuth2/OIDC flows and securing API communication against common authentication vulnerabilities.
- › **Aragon Photonics Labs** Zaragoza, Spain
 - ▶ **Lead Researcher and Developer Engineer / CTO** Sept 2021 - Apr 2023
 - Led a team of 5 engineers, managing AI-driven research projects in collaboration with universities.
 - Accelerated signal processing in photonic systems by 85% through algorithmic optimization and parallelization.
 - Built and maintained a Dockerized microservices architecture, improving software scalability and deployment efficiency.
 - Managed GitLab CI/CD workflows, reducing software release cycles from 3 weeks to 1 week.
 - ▶ **Researcher and Developer Engineer** Oct 2020 - Sept 2021

- Designed and implemented real-time data pipelines for analytics and ML workflows, reducing computational time by 40%.
- Applied SOLID and TDD principles to refactor legacy code, improving maintainability and test coverage.
- Built distributed data pipelines to process terabytes of real-time data, enabling advanced analytics and ML integration.

► **Project Engineer**

Feb 2019 - Oct 2020

► **Efor, Internet and technology**

Zaragoza, Spain

► **Data analyst**

Apr 2017 - Nov 2017

Education

► **Master's in Physics of Complex Systems**

Zaragoza, Spain

UNED

Sept 2020 - Sept 2021

► **Master's degree in mathematical modelling, statistics and computing**

Zaragoza,

Spain

UNIZAR & UPV/EHU

Sept 2016 - Sept 2018

► **Bachelor's degree in Physics**

Zaragoza, Spain

UNIZAR

Sept 2011 - Sept 2016.

Projects

► **SecureChat**

React

Python

Distributed System

- Developed a distributed real-time chat system demonstrating advanced WebSocket handling and Keycloak-based authentication/authorization: FastAPI (backend), React (frontend)
- Architected for scalability with multiple backend and frontend instances communicating via messaging queues (RabbitMQ or Redis).
- Implemented secure WebSocket sessions with role-based access control and token refresh every 5 minutes using Keycloak.

► **Distributed Acoustic Sensing (DAS) Application**

Flutter

Python

Gitlab CI/CD

Distributed System

Signal processing

- Designed a multi-platform DAS monitoring application with python backends and frontends initially in React using React.js, later migrated to Flutter for cross-platform support.
- Integrated Keycloak for authentication, role management, and secure data access.
- Engineered a real-time distributed data pipeline for signal processing, integrating FastAPI, WebSockets, and RabbitMQ, designed to scale for machine learning use cases.

► **Portfolio website** <https://agrubio.dev>

ASTRO

Github pages

- Built a personal portfolio with blog-style project breakdowns using astro.
- Features examples of backend architecture, performance benchmarks, and code snippets.

Languages

- Spanish (native),
- English (Full professional proficiency)