

ABEL GARCÍA RUBIO

Senior Python Backend Developer and Physicist

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Professional Summary

- Senior Python Backend Developer with 8+ years of experience designing scalable backend architectures for data-intensive and real-time applications.
- I combine a scientific background in physics and mathematics with strong software engineering principles (SOLID, TDD, DevSecOps). I thrive in cross-functional teams, and I am passionate about building secure, reliable, and maintainable systems using FastAPI, Docker, and Kubernetes.
- 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 API throughput, reducing latency by 25%., reducing technical debt by leveraging SonarQube and applying SOLID principles.
 - Deployed microservices architecture with Python and FastAPI, streamlining backend processes, reducing API response time by optimizing design patterns aligned with SOLID principles.
- › **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 data processing pipelines, reducing computational time for seismic and audio data analysis by 40%.
- Applied SOLID and TDD principles to refactor legacy code, improving maintainability and test coverage.
- Processed terabytes of real-time data, enabling advanced analytics in photonic measurement systems.

► 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 UNED	Zaragoza, Spain Sept 2020 - Sept 2021
► Master's degree in mathematical modelling, statistics and computing Spain UNIZAR & UPV/EHU	Zaragoza, Sept 2016 - Sept 2018
► Bachelor's degree in Physics UNIZAR	Zaragoza, Spain Sept 2011 - Sept 2016.

Projects

► SecureChat	React	Python	Distributed System
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • Designed a multi-platform DAS monitoring application with backends in FastAPI and frontends initially in React, later migrated to Flutter for cross-platform support. • Integrated Keycloak for authentication, role management, and secure data access. • Engineered real-time data pipeline with FastAPI and WebSockets. • The backend processes data in real time and dispatches results through RabbitMQ for scalable message-driven architecture. 			

► Portfolio website https://agrubio.dev	ASTRO	Github pages
<ul style="list-style-type: none"> • 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)
- German (A1)