Álvaro GONZÁLEZ SÁNCHEZ

Backend & Data Engineer | Python · FastAPI · AWS · Docker

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► Driver's licence B – Own vehicle

PROFILE

Backend and Data Engineer with a strong background in Python, API development and cloud-based data architectures. Experienced in building scalable backend applications, processing time-series data and automating complex workflows. Combines software engineering with an analytical engineering mindset and years of experience in modelling and data-intensive projects. Driven to build robust, secure and performant systems within a dynamic team.

WORK EXPERIENCE

Python Developer & Data Engineer 08/2025 – present
Self-employed

- Deepening knowledge and experience in Python, data engineering and cloud architectures through personal projects and targeted training.
- Development of the IoT Monitoring Platform (see Projects).

Freelance Data Engineer 02/2025 – 07/2025
Self-employed — Peru & Bolivia

- Data analysis and software development for projects in South America (environmental and water sector).
- Processing and analysis of discrete and continuous datasets using Python.

Programmer 03/2023 – 01/2025
Link / Manage Count-e — Leuven

- Backend development and maintenance of a school management system with a complex relational database (350+ tables).
- Automation of administrative business processes in collaboration with multidisciplinary teams.
- Worked with large structured datasets and contributed to the stability and extensibility of the system.

Groundwater & Surface Water Advisor 03/2022 – 12/2022
Antea Group Belgium

- Analysis of hydrological data and groundwater flow modelling.
- Spatial analyses using ArcGIS Pro and QGIS.
- Advisory reports for policymakers and companies on water management.

Family care 2019 – 2021

Researcher – Hydrodynamic Modelling 05/2013 – 08/2019
Vrije Universiteit Brussel

- Hydrodynamic modelling of the Zeeschelde estuary.
- Development of numerical models in Fortran.

Special Academic Staff (BAP) 11/2009 – 04/2013
Vrije Universiteit Brussel — Brussels

Assistant Hydrology & Hydraulic Engineering 06/2009 – 07/2009
Soresma — Belgium

Hydraulic Engineer 08/2006 – 08/2007
Zorrilla Construcciones — Bolivia

EDUCATION

MSc Water Resources Engineering
KU Leuven
2009 · *Magna cum laude*

Enterprise Java Developer
VDAB
2021–2022

BSc Engineering
Univ. Mayor de San Simón (Bolivia)
2004

Specialisation Environmental Management
Universidad de Beni (Bolivia)
2007

Effective Scientific Communication *(6 ECTS)*
Vrije Universiteit Brussel
2014

Statistics for PhD Students *(6 ECTS)*
Vrije Universiteit Brussel
2012

CERTIFICATIONS (2025 –)

LinkedIn · Apache Airflow
LinkedIn · Claude AI: Data Analysis, Programming, MCP
LinkedIn · Build with AI: API with CI/CD in Claude Code
IBM · Containers, Kubernetes & OpenShift
IBM · Cloud Native, DevOps, Agile & NoSQL
LinkedIn · Docker Compose
LinkedIn · Build REST APIs with FastAPI
LinkedIn · Building RESTful APIs with Flask
MITx · Intro to CS & Programming – Python
MITx · Computational Thinking & Data Science
AWS · Developing Apps in Python on AWS

Research Assistant & Programming Assistant 07/2004 – 07/2006
Universidad Mayor de San Simón — Bolivia

PROJECTS

IoT Monitoring Platform — Project 1a: Serverless Ingestion · 12/2025 – 01/2026
Python · AWS Lambda · API Gateway · DynamoDB · CloudFormation · GitHub Actions

- Serverless REST API for real-time ingestion of sensor events (temperature, humidity, occupancy, motion) with threshold-based anomaly detection.
- Clean layered architecture (models → services → repositories). Full infrastructure provisioned with CloudFormation. Deployed to AWS via CI/CD.
- GitHub: github.com/GonzalezSanchez/iot-monitoring-platform

IoT Monitoring Platform — Project 1b: Containerised Ingestion · 01/2026 – 02/2026
Python · FastAPI · Docker · nginx · AWS DynamoDB · React · Cloudflare · GitHub Actions

- Same business logic as 1a, redeployed as a containerised FastAPI application — demonstrating the separation of domain logic from infrastructure.
- Live at iot.gonzalezsanchez.dev on a home server via Docker Compose + Cloudflare tunnel. React dashboard with 30s auto-refresh and live event submission.
- Docker images built and pushed to GitHub Container Registry on every merge to main.

IoT Monitoring Platform — Project 2a: Behavior Analyzer · 02/2026 – 04/2026
Python · AWS Step Functions · Lambda · Aurora Serverless v2 · EventBridge · Terraform · Secrets Manager · GitHub Actions

- Serverless ETL pipeline: extracts historical sensor data from DynamoDB, detects occupancy schedules, temperature trends and anomalies, stores results in Aurora Serverless v2 (PostgreSQL).
- Full infrastructure provisioned with Terraform. Runs on-demand to minimise AWS costs (~$15/month while deployed, scales to zero when idle).
- 215 tests across three projects (pytest + moto); 80%+ coverage enforced on every push via GitHub Actions.

AWS · Getting Started with Data Analytics on AWS

HarvardX · Intro to Data Science with Python

IBM · Python for Data Engineering

Microsoft · Power BI: Data Models & Reports

Esri · Complete ArcGIS Pro Mastery

Esri · Spatial Data Science

Esri · ArcGIS API for Python

Full list on LinkedIn.

SKILLS

Backend & Development
Python, FastAPI, Flask, Java (Spring Boot), REST APIs, ETL pipelines, OOP, TDD

Cloud & DevOps
AWS (Lambda, API Gateway, DynamoDB, Aurora Serverless v2, Step Functions, EventBridge, Secrets Manager, CloudWatch, SNS, CloudFormation), Terraform, Docker, Docker Compose, Kubernetes, Nginx, Cloudflare, GitHub Actions, CI/CD, IaC

Data Engineering
Pandas, NumPy, PySpark, SQL (PostgreSQL, MySQL, MongoDB), Power BI, Tableau, Scikit-learn, Apache Airflow, ETL

GIS
ArcGIS Pro, ArcGIS API for Python, QGIS, FME

Other
Git, Scrum/Agile, JUnit, Maven, HEC-RAS, MODFLOW, Fortran

LANGUAGES

Spanish — Native
English — C1
Dutch — C1
German — A2
French — A2