FRANCISCO ANAYA PALACIOS

Robotics Engineer | Data Scientist & Analyst

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PROFESSIONAL STATEMENT

Engineer with top academic distinctions and hands-on experience in robotics, AI, and data science. Awarded multiple Honors (Algebra, Statistics, Thesis), with published datasets of autonomous navigation. Proven resilience and adaptability demonstrated by completing two marathons, achieving C1–C2 English in just two months in Australia, reaching C1 French within one academic year in Belgium, and adapting across several different jobs both abroad and in my home country. Driven to contribute innovation, creative solutions, and high-impact problem-solving to pioneering engineering teams — now seeking my next professional step to contribute as an engineer in an English-speaking environment, fulfilling my aspiration to create meaningful value.

EDUCATION

B.Sc. in Electronic, Robotic & Mechatronic Engineering

2019 – 2024

University of Malaga (Spain)

Graduated with multiple top grades, including **Honors in Algebra, Statistics.**

Thesis in Robotics (***honors grade***, publication).

Active participant in **university robotics** and **international mentoring programs**, fostering collaboration and cross-cultural exchange.

Engineering and Applied Sciences

SEP 2021 – SEP 2022

Universities of Liège (Belgium) & Metz (France)

Full-year Erasmus+ exchange.

Courses taught in **English and French**.

Completed advanced French language training with native instructors.

Scientific Baccalaureate

2016 – 2018

I.E.S. Camilo José Cela

LANGUAGES

SPANISH	Native
ENGLISH	C1 (Cambridge: 197 points) C1 (IELTS)
FRENCH	C1 (TCF: 581 points - Alliance Française)

EXPERIENCE

Cetaqua Andalucia

MAR 2024 – MAR 2025

Support Technician – Innovation Engineer

Worked on **data analysis**, **ML**, and **computer vision** in R&D projects on water reuse and sustainability.

Participated in **EU-funded initiatives**, supporting tool development and research workflows.

RoboRescue UMA

OCT 2022 – MAR 2023

Integration Engineer

Integrated sensors and ROS-based modules for **autonomous rescue robotics**.

Collaborated with a **multidisciplinary team** on real-time perception and control.

Bar Chito

2018 – 2025

Hospitality Worker

CORE STRENGTHS

- Strong commitment and reliability
- Teamwork and collaboration
- Professional attitude
- High adaptability and fast learning capacity
- Innovative and solution-oriented mindset

PROJECTS

Thesis Project: 3D LiDAR-Based Outdoor Mapping & Autonomous Navigation, SLAM (Bachelor Thesis, graded with Honors / *Matrícula de Honor*) [University of Malaga]

- **Designed and implemented** a full-stack robotic system for **autonomous navigation** in **GPS-denied environments**, combining **3D mapping**, **SLAM**, and **sensor fusion**.
- **Integrated LiDAR (Ouster OS1-32), RGB-D, IMU, and GPS-RTK** into a **ROS2-based pipeline** for **perception and path planning**.
- **Automated performance evaluation**, testing different **voxelization strategies** and **error metrics** to analyze **system robustness**.
- **Validated robustness and accuracy** through real-world field testing on an **Agilex Hunter 2.0 UGV**.
- Awarded **Matrícula de Honor**, with contributions to the community through **open-source code** and a **public dataset**.
- **Technologies:** ROS2, LiDAR, Python, C++, RViz, Open3D, PCL, GIS Tools.
- GitHub Code · Published Dataset DOI

European R&D Projects - Data Science & Innovation [Cetaqua]

- **Spearheaded the automation of complex data pipelines** and the **design of data models**, ensuring efficient acquisition, normalization, and integration of large-scale environmental datasets.
- Advanced the **statistical and geometric analysis** of climatological data, enabling their use in **high-precision predictive models**.
- Designed **correction and post-processing methods** that significantly improved the **reliability of forecasting under non-linear dynamics**.
- Demonstrated strong **data science expertise** by applying advanced **correlation, causality (Granger tests), and temporal analysis** to build robust environmental scenarios.
- **Technologies:** Python, Pandas, NumPy, Scikit-learn, Statsmodels, OpenCV, JavaScript, GIS tools.

Computer Vision Project — Droplet & Cell Detection [University of Liège]

- Designed and implemented an algorithm to detect and count **microdroplets and encapsulated cells** using **background subtraction** and **contour-based detection**.
- Validated accuracy against annotated ground truth (**Cytomine**), achieving **<5% counting error** while **optimizing inference speed**.
- Collaborated in a **team**, **achieved top performance in class**, recognized for **highest accuracy and robustness**.
- **Technologies:** Python, OpenCV, NumPy, Cytomine, Matplotlib.

TECHNICAL SKILLS

Programming Languages

- **Python** (scientific stack: Pandas, NumPy, Scikit-learn, Statsmodels), **C++**, **C**, **JavaScript**, **MATLAB**, **Lua**

Robotics & Embedded Systems

- **ROS/ROS2**, Arduino, **CoppeliaSim**, **sensor fusion & integration**, embedded systems, autonomous navigation, real-time control

Computer Vision & Artificial Intelligence

- **OpenCV**, TensorFlow, PyTorch, **deep learning & machine learning** (CNNs, object detection, segmentation), 3D mapping, model training & optimization

Data Science & Analytics

- Predictive modeling, statistical & time-series analysis, feature engineering, **data modeling**, **data pipelines & ETL workflows**, data visualization, hypothesis testing

Software, Tools & Platforms

- Git/GitHub, Linux, SQL, Jupyter, Docker introductory cloud platforms, GIS tools (Rasterio, GDAL, QGIS), MATLAB/Simulink
- Cloud & Automation: Google Workspace (App Scripts for Sheets automation)