

FRANCISCO ANAYA PALACIOS

Robotics Engineer | Data Scientist & Analyst

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EDUCATION

2019 – 2024	B.Sc. in Electronic, Robotic and Mechatronic Engineering University of Malaga (Spain) Graduated with multiple top grades. Final project: autonomous 3D mapping and robotic navigation (<i>honors grade</i> , publication). Active participant in university robotics and international mentoring programs.
SEP 2021 – SEP 2022	Engineering and Applied Sciences Universities of Liège (Belgium) & Metz (France) Full-year Erasmus+ exchange. Courses taught in English and French . Completed advanced French language training with native instructors.
2016 – 2018	Scientific Baccalaureate I.E.S. Camilo José Cela

LANGUAGES

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

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.

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 – MARCH 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](#) · [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, 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 **multidisciplinary team**, achieving **best overall 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, SLAM, model training & optimization

Data Science & Analytics

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

Software, Tools & Platforms

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