Marco Mongi

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Professional Summary

Telecommunications Engineer, Data Science and AI specialist, I turn complex requirements into production-ready solutions. As Product Owner and Systems Engineer I led satellite data-processing pipelines and Industry 4.0 computer-vision projects, winning NASA design-board approval and bootstrapping an internal AI team. Expert in Python and advanced AI—computer vision, machine learning and LLMs—I pair agile, clean code and CI/CD with intuitive web UIs and insight-rich dashboards to deliver simple, scalable products that unlock measurable efficiency.

Work Experience

Ascentio Technologies Río Cuarto, Argentina
Product Owner, Systems Engineer July 2022 – July 2025

- **Implemented** over 20 improvements to the L0 processor of the SABIA-Mar satellite mission in Python, fulfilling client-required functionalities within a 3-month timeframe.
- **Managed teams** of up to 10 people as **Product Owner** and **Systems Engineer**, leading the Technological Infrastructure and Science Data Processing subsystems of the SABIA-Mar satellite mission.
- Launched the company's **artificial-intelligence division**, transferring expertise to the team and enabling the acquisition of new clients in computer vision and Industry 4.0.
- Led end-to-end a **computer-vision production-control system** for an industrial plant, covering design, production rollout and ongoing maintenance. The solution blends multi-object detection and tracking, edge computing, IoT protocols and real-time dashboards, enabling performance and efficiency monitoring.

Ascentio Technologies Río Cuarto, Argentina
Intern September 2020 – December 2020

- Developed a platform for **automatic crop detection** in Python, achieving 80% accuracy using supervised classification algorithms applied to time series of multi-spectral satellite images.

Faculty of Engineering, UNRC Río Cuarto, Argentina
Intern 2018 – 2019

- Contributed to the project "Improving university campus accessibility – Hearing loops", implementing **systems to enhance hearing** for people with hearing impairments.

Education

Stanford University Online
Machine Learning Specialization 2025

National University of Córdoba / MundosE Córdoba, Argentina
University Diploma in Data Science 2024

National University of Río Cuarto (UNRC) Río Cuarto, Argentina
Telecommunications Engineering, Radiocommunications Orientation. GPA: 8.71 2013 – 2022

COURSES AND CERTIFICATIONS

2025 | EF SET English Certificate | EF SET | C2 Proficient
2025 | Gen AI Intensive Course | Google / Kaggle
2024 | Introduction to Statistics | Stanford University

2024 | OpenCV Bootcamp | OpenCV University | 100%
2024 | Public Speaking Course | Aprender de grandes
2017 | **First Certificate in English** | University of Cambridge | Grade A

Additional courses on LinkedIn profile.

Skills

TECHNICAL SKILLS

- Python (OOP, NumPy, Pandas, Scikit-learn, pytest, FastAPI, CI/CD).
- R (basic analytics) and MATLAB programming.
- Databases: SQL.
- Machine Learning & AI: supervised/unsupervised models, reinforcement learning; time-series forecasting; deep learning with PyTorch and Keras/TensorFlow; LLMs; generative AI & prompt engineering.
- Computer Vision: YOLO, OpenCV, digital image processing, remote sensing imagery, GIS.
- Data Engineering: ETL pipelines and Apache Airflow orchestration.
- Data Visualisation & Dashboards: Grafana, Streamlit.
- Web/UI Prototyping: Gradio, Streamlit.
- DevOps & Cloud: Git, GitHub & GitHub Actions, Docker, Docker Swarm, Kubernetes, high-concurrency architecture, AWS, GCP.
- IoT & Edge Computing: MQTT, Raspberry Pi, hardware accelerators.
- Systems Design: scalable Industry 4.0 and satellite applications (frontend, backend, databases).
- Testing: unit (pytest, unittest), system (Robot/Behave) and end-to-end.
- Product & Project Management: Agile/Scrum (JIRA), Product Ownership, Product Management.
- Documentation & Reporting: LaTeX, academic writing.
- Hardware & Prototyping: Arduino, robotics, sensor integration, soldering, 3D design (SolidWorks/Fusion 360) and 3D printing (FDM).
- Operating systems: Windows & Linux.
- Public speaking & training materials (English/Spanish); effective communication.
- English proficiency: C2 EF SET, C1 Cambridge FCE.

SOFT SKILLS

- Product vision and strategic roadmap definition.
- Backlog management and feature prioritization.
- Effective stakeholder communication, expectation management and negotiation.
- Effective communication of technical concepts to non-technical audiences.
- Cross-functional leadership and coordination, fostering teamwork.
- Risk, scope, resource and budget management.
- Systems analysis and evaluation; KPI- and OKR-driven decision making.
- Continuous improvement and innovation of processes, products and working methods.
- Mentoring, knowledge transfer and peer reviews.
- Customer-centric focus.
- Emotional intelligence and empathic collaboration.
- Critical and analytical thinking, complex problem solving.
- Time management and high-quality delivery under pressure.
- Continuous learning and adaptability to change.

Academic Publications

- 2021 | **First author**: Design of 5G-oriented patch antennas, a comprehensive survey. EAI Endorsed Transactions on Mobile Communications and Applications. doi: 10.4108/eai.16-3-2021.169031
- 2020 | **Doctoral thesis review**: Communication, modeling, and optimal scheduling of loads in smart grids | Federico Aguirre

- 2019 | **First author**: Deep Learning applied to the handoff of cellular systems: a survey. TechRxiv. doi: 10.36227/techrxiv.11391906.v1

Presentations and Recognitions

PRESENTATIONS

- 2024 | **Presenter** at the Infopork Swine Innovation Forum, presenting how artificial intelligence transforms the agro-industry and its challenges.
- 2023 | **Presenter** of systems in charge to stakeholders during the Critical Design Review of the SABIA-Mar mission (MCDR), evaluated by experts from institutions like NASA, CNES, AEB, and INPE. The presentation was in English, reviewing the satellite's science data processing systems (L0 Processor) and generated product publication.

COMPETITIONS

- 2024 | Winner of the **Datathon** Río Cuarto 2024, developing improvements for an LLM chatbot for bullying prevention. Competed in groups of 4 people with approximately 100 participants, performing ETL activities.

Personal Projects

- Developed a **real-time license-plate detector** combining YOLOv8, DeepSORT and EasyOCR, featuring an interactive Gradio-based web UI.
- Designed a **wearable-style monitoring system** that generates synthetic vitals, applies per-user unsupervised anomaly detection, and streams results to Grafana dashboards on a TIG stack (Telegraf, InfluxDB, Grafana) orchestrated with Docker Compose.
- Implemented an **LLM-powered interactive adventure generator** that narrates branching stories with bilingual (EN/ES) voice and text, leveraging LangChain for agentic flow, Whisper for STT, and Piper for TTS.
- Developed an **interactive handwritten digit recognition system** using a carefully regularized CNN trained on MNIST with augmentations, delivering real-time inference via Gradio and achieving 99.49% test accuracy.
- Built a **real-time Apache Airflow ETL pipeline** (Docker) that ingests OpenWeatherMap weather data, normalizes it, and bulk-loads into PostgreSQL with idempotency, API monitoring, and a 10-minute schedule featuring failure handling and duplicate prevention.
- Implemented an **interactive survival-probability prediction app** using a Random Forest classifier with a Streamlit UI, supported by comprehensive EDA and a production-ready, Docker-containerized data pipeline.
- Built a **household electricity-consumption forecasting system** covering EDA, feature engineering, and FFNN, Prophet and Random Forest models, rigorously evaluated to enhance household energy planning.
- Developed a **platform to automate the counting of red, white, and platelet blood cells** in images of blood samples, using classic image processing techniques.
- Developed a **stock index prediction system** based on historical time series analysis and sentiment analysis, achieving 90% accuracy in the latter.
- Designed and implemented a **sensor and actuator** with Arduino for livestock applications, which turns heaters, lights, and fans on and off based on time and sensed temperature and humidity.
- Implemented a **local server** functioning as Network Attached Storage (NAS), video server, automatic content downloader, ad blocker, and home automation using Raspberry Pi.
- Designed and 3D printed an **add-on for a tablet** that allows it to be used with a joystick without losing charging and volume control functionalities.

For additional details on the projects, please visit my GitHub profile.

Languages

- **Spanish**: Native
- **English**: C1 (ESOL) / C2 (EF SET)