

OMAR LÓPEZ RUBIO

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PROFESSIONAL SUMMARY

MSc Data Scientist and Machine Learning Engineer specializing in Generative AI, Real-time Agents, and High-Performance Computing. Proven experience architecting and deploying advanced models, from secure medical image generation at the Barcelona Supercomputing Center to commercial AI agents serving over 100,000 clients. Seeking to leverage expertise in MLOps, data analysis, and privacy-preserving AI to drive innovation and generate actionable insights.

WORK EXPERIENCE

Senior Data Scientist

Capgemini

Jul. 2025 - Present

Barcelona, Spain

- Collaborated on a RAG project for Bayer, engineering the backend API and optimizing search engine retrieval logic while resolving critical bugs to ensure system stability.
- Developed and implemented an intelligent chatbot for the SGAD (Secretaría General de Administración Digital), leveraging a Retrieval-Augmented Generation (RAG) framework to ensure highly accurate and context-aware responses.

Data Scientist

Factor Energia

Mar 2025 - Jul. 2025

Barcelona, Spain

- Architected and deployed a real-time AI agent to automate contract sales and customer interactions for a user base of over 100,000 clients.
- Engineered an Agent-to-Agent (A2A) communication protocol, creating a dynamic 'agent shop' registry that enabled seamless, zero-knowledge interaction between autonomous agents.
- Developed a live sales-assistant agent that provided real-time conversational analysis and recommendations to human sales partners, boosting efficiency and performance.
- Engineered an automated data pipeline for ingesting and normalizing over 100,000 pages of contracts and invoices monthly, eliminating a critical manual bottleneck.
- Conducted in-depth analysis of conversational data to extract actionable business insights, driving iterative improvements to agent logic and customer experience.

Junior Researcher

Barcelona Supercomputing Center

Oct 2022 - Oct 2024

Barcelona, Spain

- Developed and optimized generative models (GANs, Diffusion Models) for secure medical image synthesis within a High-Performance Computing (HPC) environment (Marenostrum 5).
- Contributed to the European SECURED project, collaborating with medical professionals to address critical data privacy challenges using privacy-preserving ML techniques.
- Implemented MLOps solutions for the efficient deployment, serving, and management of large-scale machine learning applications on supercomputing infrastructure.

Technology Consulting Analyst

Accenture

Apr 2018 - Dec 2018

Barcelona, Spain

- Led an Optical Character Recognition (OCR) team in a complex information extraction project, establishing foundational tools for ML-based document classification.
- Acted as a key technical liaison between machine learning teams in Barcelona and Madrid, ensuring project alignment and successful knowledge transfer.

Freelance Programming & ML Tutor

Self-Employed

Jul 2018 - Sept 2025

Barcelona, Spain

- Developed and deliver advanced, university-level coursework on Algorithmics, Machine Learning, and various programming paradigms to over 100 students.

EDUCATION

M.S. in Data Science

Universitat Politècnica de Catalunya (UPC)

2022 - 2024

Barcelona, Spain

- *Thesis: Secured Mammogram Generation using GANs and Diffusion Models*

B.S. in Computational Science

Universitat Politècnica de Catalunya (UPC)

2014 - 2021

Barcelona, Spain

- *Thesis: A Study of new Kernels for Support Vector Machines*

SKILLS

- **Programming & Databases:** Python, Java, C++, C, Node.js, SQL, NoSQL
- **ML & Data Science:** Generative AI (GANs, Diffusion Models, LLM), Computer Vision (OCR), Explainable AI (XAI)

PROJECTS

Skore Fencing Application

Dec 2019 - Apr 2020

- Independently designed and created "Skore," a full-stack Node.js application for scoring and managing fencing matches for the Federació Catalana d'Esgrima.

CERTIFICATIONS AND COURSES

- Accelerate Knowledge Exchange with Google Agentspace, *Google* (Aug 2025)
- Deploy Google Agentspace, *Google* (Aug 2025)
- Extend Google Agentspace assistant capabilities, *Google* (Aug 2025)
- Improve Vertex AI Search and Google Agentspace Search Results, *Google* (Aug 2025)
- Introduction to Google Agentspace, *Google* (Aug 2025)
- Vertex AI Search and Google Agentspace Analytics, *Google* (Aug 2025)
- Vertex AI Search and Google Agentspace UI Configurations, *Google* (Aug 2025)
- Configure and Maintain CCAIP as an Admin, *Google* (Jul 2025)
- DFCX Virtual Agent Delivery Framework, *Google* (Jul 2025)
- Gen AI Agents: Transform Your Organization, *Google Cloud* (Jul 2025)
- Jenkins : Automating your delivery pipeline, *Coursera Project Network* (Jul 2025)
- Fundamentals of MCP, *Hugging Face*
- Agents Course Certificate of Excellence, *Hugging Face*
- AI Agents Fundamentals, *Hugging Face*
- AWS Academy Cloud Foundations, *Amazon Web Services*
- Certificate in Advanced English (C1), *Cambridge English*

LANGUAGES

- **Spanish:** Native
- **Catalan:** Native
- **English:** C1 Certified (Professional Fluency)