

# Héctor Álvarez Pérez

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## PROFESSIONAL SUMMARY

Data Scientist and Machine Learning Engineer with a strong mathematical background. Experienced in building predictive models and deploying them into production environments using MLOps best practices. Passionate about bridging the gap between statistical analysis and scalable software solutions.

## EDUCATION

### BSc in Computational Mathematics and Data Analysis

Exp. 2026

Universitat Autònoma de Barcelona (UAB)

- Focus: Statistical Modeling, Algorithm Design, Machine Learning Theory.

## EXPERIENCE

### Machine Learning Engineer Intern | Aily Labs

Oct 2024 – Present

*Specialized in Decision Intelligence & Agentic AI workflows.*

- Developed scalable **MLOps pipelines** on AWS using Docker and Kubernetes, reducing model deployment time and ensuring high availability for the global platform.
- Engineered **Agentic AI workflows** using **LangChain** and LLMs to deliver real-time, conversational insights across Finance and Supply Chain modules.
- Collaborated with cross-functional teams to integrate predictive signals into the core application.

### Data Scientist Intern | Altia-IN2

Jul 2024 – Aug 2024

- Architected a synthetic data generation pipeline for medical formats using Python, enabling privacy-compliant testing.
- Developed an end-to-end automation solution utilizing **Python** and **n8n**, streamlining internal data processing workflows.

### Computer Vision Researcher | Computer Vision Center (CVC)

Oct 2023 – Feb 2024

- **Research Focus:** Domain Adaptation in Semantic Segmentation.
- Fine-tuned segmentation models on synthetic datasets using **LoRA (Low-Rank Adaptation)**, optimizing computational efficiency while maintaining accuracy.
- Implemented **Active Test-Time Adaptation (ATTA)** strategies to enhance model performance under challenging weather conditions with minimal user interaction.

## TECHNICAL PROJECTS

### AI ChatBot for Telemedicine (HackUAB 2025)

- Developed a full-stack telemedicine platform featuring an AI medical assistant, doctor management system, and interactive maps.
- *Stack:* Python, React, NLP APIs.

### LaLiga Fantasy Price Predictor

- Built a regression-based ML model to forecast player prices, achieving high accuracy by engineering features from scraped performance stats.
- *Stack:* Python, Scikit-learn, BeautifulSoup, Pandas.

### Image Captioning with Deep Learning

- Created an Encoder-Decoder architecture (CNN + LSTM) in **PyTorch** to generate natural language descriptions for images automatically.

## TECHNICAL SKILLS

- **Data Science & ML:** Statistical Modeling, Predictive Analytics, Deep Learning, GenAI, Computer Vision.
- **Infrastructure & MLOps:** AWS, Docker, Kubernetes, CI/CD Pipelines, Git.
- **Frameworks:** PyTorch, Scikit-learn, LangChain, Pandas, NumPy.
- **Tools:** Amazon RDS, MongoDB, Neo4j, n8n, Linux.
- **Languages:** Spanish (Native), Catalan (Native), English (C1 - Advanced).