

Javier Alejandro De Jesus Da Silva

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Data Science & AI student (UPM) with Academic Honors. Tech-Finance hybrid profile with Cloud certifications (AWS/Azure). Passionate about applying Software Engineering, Machine Learning, and Quantitative Modeling to solve high-impact problems and optimize scalable architectures in the tech and financial sectors.

PROFESSIONAL EXPERIENCE

AI Software Engineer & Architect (Research Staff)

Madrid, Spain

Universidad Politécnica de Madrid (UPM) - Private Tech Transfer Project

Mar. 2026 – Present

- **Architecture Design:** Developed a highly scalable, hybrid (Cloud/Local) AI pipeline to ingest, transcribe, and synthesize 55+ hours of monthly multimodal content (podcasts, videos, research papers) for industry investors.
- **FinOps & Cost Optimization:** Engineered a highly cost-efficient system by executing embedding generation (BGE-base) and topic modeling (BERTopic) locally on CPU, reducing API costs while processing over 3.1 million input tokens.
- **LLM & Audio Integration:** Integrated AssemblyAI Pro for high-accuracy speaker diarization and frontier LLMs (ChatGPT-5.2, Gemini) for executive synthesis, orchestrating the asynchronous workflow via LangGraph.

FEATURED PROJECTS

Quantitative ML Investment Engine | Python, XGBoost, Pandas, WFA

Oct. 2025 – Present

- **ML Strategy:** Built an investment system based on **Meta-Labeling** (Triple Barrier Method) and **XGBoost** for predictive signal filtering and trade execution.
- **Market Microstructure:** Engineered liquidity and flow toxicity features (**VPIN**, **Kyle's Lambda**) for robust risk regime detection.
- **Rigorous Validation:** Implemented backtesting using **Walk-Forward Analysis** and **Combinatorial Purged Cross-Validation** to effectively prevent data leakage.
- **Institutional Simulation:** Developed an automated module to calculate real-world transactional costs and tax impact (**IRPF**).

Financial Analysis RAG System | Python, Llama-3, LangChain

Feb. 2025 – Present

- **Automated Auditing:** Developed a vector retrieval system (FAISS) to extract key insights and financial metrics from complex regulatory filings (SEC 10-K/10-Q).
- **Secure Code Execution:** Created a sandboxed environment where the LLM autonomously generates and executes Python code to compute financial ratios for quantitative research.

TECHNICAL SKILLS

Languages: Python (Advanced), SQL, Bash.

Data & AI: Pandas, NumPy, Scikit-learn, XGBoost, PyTorch, LangChain, BERTopic, Time Series, LLMs.

Infrastructure & Tools: Git, Docker, Cloud Computing (AWS/Azure basics), FinOps Cost Optimization.

Languages: Spanish (Native), English (Professional Working Proficiency).

Soft Skills: Complex Problem Solving, Proactive (Self-Taught), Continuous Learning, Team Collaboration.

EDUCATION

Universidad Politécnica de Madrid (UPM)

Madrid, Spain

Bachelor's Degree in Data Science and Artificial Intelligence

Sept. 2024 – Present (Exp. 2028)

- **Academic Excellence:** Awarded **Honors (Matrícula de Honor)** in Data Science Programming and Natural Language Processing (NLP).

CERTIFICATIONS

Cloud Technology & Artificial Intelligence

Amazon Web Services & Microsoft

AWS Certified AI Practitioner | Microsoft Certified: Azure AI Fundamentals

Finance & Markets

Yale University (Coursera)

Financial Markets (Risk Management and Behavioral Finance)