

# Felipe Espinosa

AI Engineer

Paris, France | +33 7 66 09 03 35 | felipeespinosa.13@outlook.com

<https://linkedin.com/in/felipe-espinosa13> | <https://github.com/Pipe1213>

## SUMMARY

AI Engineer with hands-on experience building LLM-powered applications. Developed and delivered a production-ready SQL Agent using LangChain and RAG, and pioneered the first TTS system for the Walloon language. Skilled in bridging advanced research with practical implementation.

## EXPERIENCE

### Capital Fund Management | Paris, France

AI Engineer Intern

March 2025 – September 2025

Developed a production-ready AI-powered SQL Agent that enables analysts to query enterprise data using natural language. The system uses a modular **LangChain** and **LangGraph** pipeline to eliminate the need for manual SQL, providing a seamless and efficient interface for data access.

- Designed and optimized retrieval-augmented generation (**RAG**) pipelines using vector databases and LLM-driven schema enrichment for context-aware table and example selection in **Oracle** databases.
- Implemented agentic workflows with **LangChain**, **LangGraph**, and multi-step planning, integrating custom tools for retrieval, reasoning, query validation, and automated answer synthesis.
- Developed and evaluated parallel chain-of-thought prompting and fallback strategies, enhancing the system's robustness and correctness for complex financial data queries.
- Delivered a production-ready prototype, setting a reference for future LLM-based internal tools.

### Laboratoire Interdisciplinaire des Sciences du Numérique (LISN) | Orsay, France

NLP Research Intern

April 2024 – August 2024

Led the end-to-end development of the first Text-to-Speech (**TTS**) system for the low-resource Walloon language, from data processing and model training to public deployment and academic publication.

- Developed a novel **TTS** system using a conditional variational autoencoder (**CVAE**) and cross-lingual transfer learning from French to overcome data scarcity.
- Managed the complete project lifecycle, including data pipeline creation, model training, fine-tuning, and evaluation using both objective and perceptual metrics.
- Published findings at the 13th Speech Synthesis Workshop (Interspeech 2025), showcasing novel methods for low-resource **TTS** in Walloon. [DOI: 10.21437/SSW.2025-29].
- Released the trained models and inference demos publicly on **Hugging Face** to advance open research and community adoption.

## SKILLS

**Languages & Databases:** Python, SQL | RedisDB, ChromaDB, Oracle

**AI/ML Frameworks:** PyTorch, LangChain, LangGraph, Pandas, NumPy

**AI/ML Concepts:** LLM Integration, RAG, Agentic System Design, Prompt Engineering, TTS

**Tools & Platforms:** Git, Docker, AWS, Streamlit, Jupyter, OpenAI API, Confluence, Jira

**Soft:** Analytical Thinking, Problem Solving, Research & Scientific Writing, Technical Communication, Team Collaboration, Adaptability, Autonomy, Continuous Learning

## EDUCATION

### Paris Saclay University

September 2023 – September 2025

Master Degree in Artificial Intelligence

### Lloyds International College

February 2020 – February 2022

Advanced Diploma in Leadership and Management

### Universidad Industrial de Santander

April 2010 – December 2016

B.Sc. in Electronic Engineering

## LANGUAGES

Spanish (Native) | English (C1) | Portuguese (B2) | French (B1)