



Hamza Masmoudi

End-of-study internship (PFE) starting at the end of March

✉ hamza.masmoudi@etu.ec-lyon.fr

📍 France

🏠 Lyon

📞 07 58 33 17 03

🌐 @hamza-masmoudi-1a77b6195

## À propos

I am Hamza Masmoudi, a final-year Data Science engineering student at Ecole Centrale de Lyon. I am seeking an internship in Machine learning/Data Science starting from the end of March. I am available for mobility and relocation.

## Experience

### Machine Learning Research Intern

03/2024 - 07/2024 LabISEN(Research Lab) - ISEN Ouest Brest, France

- **Developed** an object detection model using transformer technology with a **86%** success rate in complex scenes, introducing a **Density-Enhanced Transformer Encoder** that boosted model performance and reduced training time by **77%** with transfer learning on a large dataset.
- **Created** and **annotated** a 15,000-image custom dataset, designed a comprehensive testing plan, and led a novel data augmentation approach, improving model accuracy by **15%**, boosting performance by **10%**, and reducing false positives by **20%**.
- **Optimized** an 8-GPU cluster for load balancing and collaborated with teams to deploy the model on cloud infrastructure, achieving **86%** precision and reducing inference time by **30%** for real-time processing. **The solution is currently used by the French Office for Biodiversity (OFB)**

### Data Engineer Intern

07/2023 - 09/2023 The Minister of Agriculture Rabat, Morocco

- Maintained a **99.8%** data pipeline uptime while processing streaming and transactional data from eight primary sources using **Spark, Redshift, S3, and Python**.
- **Automated** ETL processes for billions of rows, reducing monthly manual workload by **29%**.
- **Automated** the extraction and processing of large datasets from legacy systems using SQL and Perl scripts

## Formation

### MSc in Data Science

09/2024 École Centrale Lyon France

### MSc in Data Science "Double Curriculum Program"

09/2024 Claude Bernard Lyon 1 France

### Engineering Degree in Computer Science (Specialized in Data) – MSc

09/2021 - 09/2024 Ecole Nationale des Mines de Rabat (ENSMR) Rabat, Morocco

## Projects

### SVM-Driven Equity Trading System

- **Built** an SVM-based trading model, achieving a **15%** annualized return over three years by leveraging SVM's strength in handling high-dimensional, non-linear market data to classify favorable trades.
- **Preprocessed** historical price data into feature sets (e.g., moving averages, volatility) to optimize SVM performance, aligning with best practices in feature scaling and data normalization for noise reduction.

### Advanced RAG Agent with PDF Retrieval Using LLM

- **Developed** a Retrieval-Augmented Generation (RAG) agent for extracting and querying PDF documents, powered by an Azure-based LLM(OpenAI).

### CoinSage: Cryptocurrency Prediction Model

- **Developed** a cryptocurrency forecasting model using logistic regression, achieving an **85%** prediction accuracy by leveraging probabilistic classification on historical price patterns.
- **Processed** over 1 million data points, optimizing feature engineering with time-series decomposition and autocorrelation, and implemented batch training with minibatch gradient descent, reducing memory use and cutting training time by **40%**.

## Skills

Python, R, Matlab, Apache Spark, AWS Redshift, AWS S3

## Languages

English  
(C2)

## Interests

Tennis

Piano