Mohamed DIAGNE

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Quantitative Researcher with a strong background in financial markets and data science, and one year of hands-on experience as an Investment Risk Data Scientist at Amundi. Available from August 2025. **For more about me, please visit: mohameddiagne.com**

PROFESSIONAL EXPERIENCE

Jul 24-Aug 25 **AMUNDI ASSET MANAGEMENT** Paris, France
Investment Risk Data Scientist, Risk Oversight

- Conducted quantitative research to predict CDS spread variations using news sentiment analysis and analyzed portfolio-level AUM impact
- Designed an AI-powered platform to monitor real-time credit risk from news. Added a vector-based SQL chatbot for analyst queries.
- Delivered end-to-end data pipelines (API, ETL, reporting) to automate integration and power interactive dashboards for risk teams.

Jul 22-Aug 22 **INVICTUS CAPITAL & FINANCE SA – ASSET MANAGEMENT** Dakar, Senegal
Financial Analyst, Trading Department

- Analyzed financial statements and market data to assess company fundamentals and monitor equity health.
- Contributed to daily market briefings by identifying sector trends and short-term trading signals.
- Maintained and updated internal databases to support financial analysis and reporting accuracy.

EDUCATION

2023-2025 **UNIVERSITE PARIS 1 PANTHON-SORONNE** Paris, France
Msc. in *Finance Technology & Data (M1+M2)*
Relevant coursework Machine Learning, Deep Learning, Econometrics, Derivatives, Quantitative Finance, Mathematics
Thesis: Real-Time Credit Risk Prediction of Amundi's Portfolio Holdings Using News Sentiment Analysis and NLP

2020-2023 **UNIVERSITE PARIS 1 PANTHON-SORONNE** Paris, France
BSc. in Economics

2020 **INSTITUTION SAINTE JEANNE D'ARC** Dakar, Senegal
Baccalauréat, Economic & Social, with Honors

KEY PROJECTS *(More available on GitHub)*

PORTFOLIO OPTIMIZATION, RISK MODELING & MACROECONOMIC STRESS TESTING
- Modeled portfolio risk using Markowitz allocation and VaR/CVaR (Historical, Student-t, Monte Carlo), benchmarked to the CAC 40.
- Performed Kupiec backtesting and macro stress tests to assess portfolio sensitivity and support risk reporting.

OPTION PRICING & HEDGING – BLACK-SCHOLES, MONTE CARLO, GREEKS
- Priced European and American options using Black-Scholes, binomial trees, Monte Carlo, and local volatility surfaces.
- Built and tested Delta, Gamma, Vega, and Theta-neutral strategies under various market conditions.

CREDIT RISK MODELING & EXPLAINABLE AI
- Built end-to-end Machine Learning pipelines to predict customer default probability from financial and behavioral data.
- Delivered role-based interactive dashboards with SHAP, surrogate trees, Anchors, and DICE to provide explainable insights to analysts, credit officers, and clients.

SKILLS

- **Languages:** French (native), English (fluent), German (Intermediate)
- **Programming & Analytics**: Python, R, SQL, VBA, LaTeX, Git
- **Data Visualisation & Tools:** Power BI (DAX, SSAS Tabular), Report Builder, Bloomberg, Postman, Jira, Microsoft Office Suite
- **Financial Engineering & Risk:** Black-Scholes, Greeks, CVA/DVA, VaR (parametric, historical, Monte Carlo), Expected Shortfall, PD/LGD/EAD, SA-CCR
- **Statistical Modeling:** Descriptive statistics, stationarity, linear regression, ARMA, GARCH, VAR, unit roots, copulas.
- **Machine Learning**: Classification and clustering (logistic regression, decision trees, KNN, Bayesian, SVM, neural networks).
- **NLP & LLMs**: Text preprocessing, embeddings (OpenAI, Sentence-BERT), FAISS search, RAG pipelines, reranking, RAGAS
- **Other:** Blockchain development (cryptography, mining, decentralization, peer-to-peer, consensus, smart contracts).

ACTIVITIES & INTERESTS

- **Certification: FRM Level 1** – GARP 2025, scholarship awarded (In Progress)
- **Finalist (Top 5/80) – Cybersecurity Challenge**, Sorbonne & Ministry of Interior: Built an AI model to detect malware via CFG analysis.
- **ESG Chatbot Developer – VO2 Group**: Developed GreenSightAI, a RAG-based ESG assistant.
- **Class Representative – M2 Finance Technology & Data:** Represented the program externally and managed social media communication.
- **Interests:** Artificial Intelligence, Cinema, Painting, Investing, Entrepreneurship, Travelling, Golf (1 year), Tai Chi (1 year).