

# Mohamed Atoui

mohamedelamineatoui@gmail.com | +44 7985665024

[GitHub](#) | [LinkedIn](#) | [Portfolio](#)

## SUMMARY

**Machine Learning Engineer / Data Scientist** with production experience building AI systems serving 500+ users. Skilled in developing ML applications, predictive modeling, and translating complex data into actionable business insights. Strong foundation in Python, SQL, PyTorch, and statistical analysis. Demonstrated ability to translate complex technical concepts for diverse audiences through teaching and client-facing product work. Proven ability to lead projects from research to deployment in fast-paced, client-facing environments.

## EDUCATION

**Royal Holloway University London** - 3rd Year Computer Science & Artificial Intelligence BSc (Honors) 2023 - 2026

- **Grade:** First-Class Honors
- **Relevant Coursework:** Machine Learning, Deep Learning, Natural Language Processing, Computational Finance, Statistics

## EXPERIENCE

### Product Data Intern – [Stats Perform](#)

Jun 2025 - Oct 2025

- Conducted market analysis using Monte Carlo simulations to model revenue potential for tech product distribution across cloud marketplaces (AWS), delivering insights to support go-to-market strategy.
- Analyzed large-scale sports datasets (NFL, NBA, MLB) using SQL and Python to identify statistical patterns, presenting findings to cross-functional teams to inform product development.
- Developed feature engineering workflows and implemented intelligent feature selection algorithms for sports analytics products.
- Performed data analysis to support SDK adoption strategy, translating technical capabilities into actionable product insights for business stakeholders.

### Co-founder & ML Research Lead - [Nordlys Labs](#) | [link](#)

Feb 2025 - Present

- Built and scaled AI infrastructure startup from concept to **500+ users**, validating product-market fit through iterative development and customer discovery; selected by Antler accelerator.
- Designed intelligent routing architecture that analyzes prompt complexity to dynamically allocate tasks across 30+ LLMs.
- Built production infrastructure with real-time monitoring dashboard enabling clients to track usage, costs, and performance metrics for data-driven business optimization.
- Engaged with clients to understand requirements and translate them into technical solutions, balancing business needs with engineering constraints.

### Teaching Assistant – Royal Holloway University of London

Oct 2025 - Present

- Mentored **50+** students in Object-Oriented Programming and Software Engineering, translating complex technical concepts into accessible learning materials.
- Provided structured feedback on technical assignments, demonstrating ability to communicate technical findings clearly and constructively.

### Machine Learning Research Assistant – Royal Holloway University of London

Dec 2024 - Sep 2025

- Researching adversarial robustness in ML-based intrusion detection for autonomous vehicles, analyzing failure modes under attack and distribution shift.
- Designed **CNN** and **LSTM** anomaly detection models; built evaluation framework for reliability testing on real-world automotive datasets.
- Contributing to academic reports and technical whitepapers, documenting analytical methodologies and communicating findings to technical stakeholders.

## TECHNICAL PROJECTS

### Financial Time Series Prediction | Python, SQL, RNN/LSTM, Pandas | [link](#)

- Built predictive models for stock and forex price movements using recurrent neural networks, demonstrating application of ML to financial data.
- Processed historical market data using SQL and Pandas, engineering features for model training and performance evaluation.

#### **HyperSwarm Multi-Agent Trading System | Python, LangChain, Django, Redis | [link](#)**

- Built multi-agent system with 5 specialized AI agents coordinating autonomous DeFi trading, implementing AI-driven risk assessment with real-time monitoring.
- Built for Hyperliquid London Hackathon (Encode Club) with production-ready infrastructure including Redis caching and performance dashboards.

#### **Transformer Attention Mechanisms Research | Python, PyTorch | [link](#)**

- Benchmarking attention variants (**Multi-Head, Multi-Query, Grouped-Query**) to quantify efficiency vs. quality trade-offs.
- Achieved **87.5%** KV-cache reduction with MQA (1.0 MB → 0.125 MB), validating theoretical memory savings.

### **TECHNICAL SKILLS**

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- **Data & Analytics:** SQL, Python, Pandas, NumPy, Apache Spark (familiar), Hadoop (familiar)
- **ML/AI Frameworks:** PyTorch, TensorFlow, Scikit-learn, Hugging Face Transformers, LangChain, ONNX
- **ML Domains:** Predictive Modeling, NLP, LLMs, Computer Vision, CNNs, RNNs/LSTMs, Time Series Analysis
- **Visualization:** Matplotlib, Seaborn, Plotly, Dashboard Development
- **Infrastructure:** Docker, Git, GitLab CI/CD, Linux, FastAPI, AWS, Azure
- **Languages:** Python, Java, TypeScript, JavaScript, C, SQL
- **Languages Spoken:** English (Fluent), French (Fluent), Arabic (Native)