

# MULUALEM KAHSSAY

Leeds, United Kingdom • mulualemkahssay@gmail.com • +44 7427387550 • GITHUB • LINKEDIN

## Professional Summary

A highly analytical and solutions-focused professional with a Master's in Mathematics and Statistics (Distinction, 2024) and a strong background in Computer Science. Combines robust academic credentials with practical experience in financial modeling, data analysis, machine learning, and software development. Demonstrates proven expertise in forecasting financial markets through sophisticated techniques. Adept at applying mathematical and statistical methodologies to solve complex problems, with a track record of driving data-driven decisions and innovative solutions.

## Education

### Master of Science in Mathematics and Statistics

Sep 2023 - Sep 2024

University of West London, London, UK

- Grade: **Distinction**
- Dissertation: *"A Geometric Brownian Motion Model to Forecast Share Prices Using Different Types of Volatilities"*
- Key Modules: Big Data Analytics, Stochastic Processes, Machine Learning, Mathematical Methods and Modelling,

### Bachelor of Science in Computer Science and Mathematics

Sep 2017 - Dec 2022

University of Leeds, Leeds, UK

- Key Modules: Software Engineering, Object Oriented Programming, Modelling with differential Equations, Algorithms & Data Structures, Artificial Intelligence, Graph Theory, Numerical Analysis, Proof & Computation

## Technical Skills

- **Programming Languages:** Python, JavaScript, C++, R, MATLAB
- **Data Analysis & Visualization:** Tableau, Power BI, Alteryx, Canva
- **Machine Learning:** Scikit-learn, TensorFlow, PyTorch, XGBoost
- **Big Data:** PySpark, Hadoop, Apache Kafka
- **Database Management:** SQL, MongoDB
- **Statistical Analysis:** SPSS, SAS
- **Cloud Platforms:** Google Cloud Platform (GCP), Amazon Web Services (AWS), Microsoft Azure

## Professional Experience

### Outlier (Remote - Freelance)

Sep 2024 - present

*Data Science Consultant* | Python, R, SQL, AI Model Training

- Developed and evaluated machine learning models using Python and key libraries (e.g., scikit-learn, TensorFlow) to refine predictive capabilities, improving project outcomes for multiple clients.
- Trained AI chatbot models in data science and data analytics by selecting optimal outputs provided by the model, enabling the chatbot to deliver ideal responses and accurate insights to end-users, assisting with data analysis needs.
- Corrected and enhanced code generated by models in response to data science prompts, including data visualizations, predictions, and insights, ensuring outputs met high-quality standards and aligned with client expectations.

### Ethio Telecom, Addis Ababa, Ethiopia

Nov 2014 - Jun 2015

*Data Analyst* | Python, SQL, R, Excel, Data Visualization, Telecom Analytics

- Leveraged Python, SQL, and R to analyze large volumes of telecom data, identifying trends in network usage and customer behavior across Ethiopia, which supported strategic decisions and led to a 15% improvement in service delivery metrics.
- Automated data cleaning and transformation processes using Python and SQL, reducing manual data preparation time by 30% and significantly enhancing data accuracy for Ethio Telecom's operational analyses.
- Utilized SQL and Excel to manage telecom data, performing complex queries and calculations to monitor key performance metrics and drive data-driven insights.
- Created interactive dashboards and reports in Excel to visualize network performance and customer analytics, enabling real-time monitoring of service quality and coverage across regions.

### Ethiopian Road Administration, Addis Ababa, Ethiopia

Jun 2013 - Nov 2014

*Software Developer* | Python, Java, SQL, GIS, API Integration, Git, Agile

- Developed and maintained software applications to support road infrastructure management, including systems for monitoring road conditions, asset tracking, and maintenance scheduling, resulting in a significant reduction in manual reporting time.
- Utilized Python and SQL to analyze large volumes of traffic and road usage data, generating insights that informed infrastructure planning and improved resource allocation.
- Integrated GIS (Geographic Information Systems) data to provide real-time mapping and visualization of the road network, enhancing route planning efficiency and maintenance prioritization.
- Built APIs that enabled seamless data sharing with 3 external government agencies, enhancing data accuracy and interdepartmental collaboration, and reducing data discrepancies by 30%.
- Ensured compliance with government data security standards through implementation of access controls and bi-annual audits, safeguarding sensitive information with zero reported security breaches.

## Ethiopian Road Administration, Addis Ababa, Ethiopia

Nov 2010 - Jun 2013

*Network and System Administrator* | Network Security, Windows Server, Active Directory, Cisco, Firewall Management

- Managed and optimized the network infrastructure across 50+ remote sites, ensuring reliable connectivity and reducing downtime by 20% through proactive monitoring and issue resolution.
- Configured and maintained Windows Server and Active Directory environments, streamlining user access management and reducing response time for system issues.
- Implemented robust network security measures, including firewall management and VPN configurations, enhancing data security and reducing unauthorized access incidents.
- Spearheaded the setup of Cisco network equipment, including switches and routers, to support scalable network expansion and improve data transmission speeds across government sites.
- Conducted regular data backups and ensured disaster recovery readiness, achieving a **100% success rate** in data recovery tests.

## Additional Work Experience

---

### Charles Contract / AME/ Apex, Leeds & London, UK

Jul 2016 - Sep 2022

*Traffic Marshal and Security Officer (Variable Engagements)*

- Worked under an overarching contract on various short-term assignments across Leeds and London while pursuing full-time studies. Responsibilities included managing vehicle and pedestrian movement on construction sites, conducting regular security patrols, and ensuring compliance with site safety protocols.

### RETAS, Leeds, UK

Jan 2023 - Sep 2023

*Employment and Education Adviser (Volunteer Experience)*

- Provided personalized career guidance and educational support to asylum seekers and refugees, empowering them to pursue professional and academic goals. Developed and facilitated interactive workshops covering CV writing, interview skills, and an introduction to the UK education system, equipping participants with essential knowledge and tools for success.

## Key Projects

---

### Master's Dissertation: Forecasting Share Prices Using Stochastic Models

Geometric Brownian Motion, Heston Model, Merton Jump Diffusion, Python, SciPy, Statsmodels, Matplotlib, Seaborn

- Developed and implemented Geometric Brownian Motion, Heston, and Merton Jump Diffusion models in Python to forecast share prices, using NumPy, SciPy, Pandas, and yfinance for model calculations, data handling, and historical data acquisition.
- Assessed model effectiveness in capturing market volatility and price jumps, applying Matplotlib and Seaborn for visualizations and performance analysis across different prediction horizons.
- Evaluated model performance on 44 stocks categorized by volatility over 3-month, 6-month, and 1-year horizons, demonstrating the adaptability of models to various market conditions.

### Comparative Analysis of Big Data Technologies

Apache Kafka, Apache Spark, Apache Hadoop, Real-time Processing, Distributed Storage, Batch Processing

- Conducted an in-depth comparative analysis of Apache Kafka, Apache Spark, and Apache Hadoop to evaluate their capabilities in handling big data challenges.
- Highlighted each technology's strengths: Apache Kafka for high-throughput real-time data streaming, Apache Spark for fast, in-memory data processing, and Apache Hadoop for distributed storage and batch processing, offering recommendations for optimal use cases.

### Kaggle Project: COVID-19 Sirio-Libanès ICU Admission

Python, Machine Learning, Jupyter Notebook, Pandas, Scikit-Learn, Matplotlib, Seaborn, XGBoost, TensorFlow

- Conducted an in-depth analysis of ICU admission data from the Sirio-Libanès Hospital during the COVID-19 pandemic, focused on predicting patient outcomes and ICU resource needs.
- Applied data cleaning, feature engineering, and machine learning techniques to create predictive models, leveraging libraries such as Pandas, Scikit-Learn, Matplotlib, Seaborn, and XGBoost.

## Certifications

---

Alteryx Designer Core Micro-Credential: Data Preparation, Alteryx | Big Data Fundamentals with PySpark, DataCamp | SQL (Basic) Certificate, HackerRank | JavaScript (Intermediate) Certificate, HackerRank | BCS Certificate in Digital Skills