

Mohamed AL-Kaisi

Senior Data Engineer | MLOps Specialist

Profile

AI/ML Computational Science Specialist with over 4 years of experience in data engineering, MLOps, and analytics solutions. Designs and builds scalable data pipelines, ML infrastructure, and cloud-native platforms using Python, SQL, AWS, and Azure. Delivers robust data flows for analytics and BI systems, complemented by expertise in SageMaker, Redshift, QuickSight, and Power BI. Recognised for solving complex technical challenges, reducing technical debt, and producing clear, high-quality documentation.

Led agile delivery within Scrum teams, managing sprints, daily stand-ups, and stakeholder coordination to achieve business outcomes. Specialises in production-grade ML workflows and data engineering practices that improve reliability, observability, and deployment speed. Trustee for Compass Collective and awarded the Greenwich Changing Lives Award (Jan 2024) for mentoring students and running hackathons.

Key Skills

Advanced: SQL, Python, Terraform, AWS (EC2, Lambda, SageMaker, Redshift, Glue), Power BI, Data Quality

Intermediate: Machine Learning, NLP, Oracle DB, Azure Fabric

Basic: Scala, Java

Qualifications & Certifications

- MSc Big Data and Business Intelligence
- BSc Computer Science
- AWS Data Engineer Associate
- Azure Data Scientist Associate
- Azure Power BI Data Analyst Associate
- Terraform Associate
- Azure Data Fundamentals | Azure AI Fundamentals | Azure Fundamentals | AWS Cloud Practitioner

Key Experience

Data Engineer - Department for Work and Pensions

Sep 2024 - Aug 2025

Contributed to the design and delivery of a proof-of-concept ETL pipeline for the next-generation health data platform.

- Analysed legacy workflows, code repositories, and data quality issues across bronze, silver, and gold stages
- Defined architecture and governance standards for migration to Azure Fabric
- Built a command-line synthetic data generator using PySpark and Faker with YAML-driven metadata configuration
- Supported multiple output formats (JSON, CSV, Parquet, Excel) and ingestion from diverse sources
- Implemented full unit testing for reliability and maintainability
- Designed for Azure deployment, enabling secure execution and data retrieval via command line
- Worked with multiple teams to ensure alignment with departmental governance and data quality frameworks

MLOps Engineer - Department for Business and Trade

Jun 2025 - Aug 2025

Supported the AI Enablement Programme, a multi-million-pound initiative aimed at accelerating the adoption of machine learning to improve staff productivity.

- Defined and productionised SageMaker strategies, supporting departmental data scientists
- Ensured LLM models in SageMaker AI were reliable, cost-effective, and operationally sustainable
- Delivered autoscaling strategy for real-time inference endpoints, providing cost-efficient, scalable approach
- Created secure VPC architecture for HR self-serve application, ensuring compliance with governance standards
- Set up Amazon Bedrock and OpenSearch integration for RAG proof of concept
- Embedded MLOps practices and provided hands-on support to accelerate deployment of prototypes

Data Engineer - Department for Work and Pensions

Sep 2024 - Jan 2025

Collaborated with DWP Finance Department to define requirements for Power BI reporting and dashboards.

- Conducted comprehensive Power BI training sessions from foundational concepts to advanced functionalities
- Developed multiple demonstration dashboards using sample data to showcase capabilities
- Authored detailed documentation to support training and ensure continuity
- Engaged with clients to gather requirements and formulate key analytical questions
- Designed and implemented final dashboards tailored to client specifications
- Led final knowledge transfer sessions to ensure client proficiency

Data Engineer - Home Office - Data Assurance Service

Feb 2023 - Jul 2024

Worked with cross-functional teams to tackle data quality issues through business analysis, UI development, ETL processes, and DevOps automation.

- Developed and implemented robust data quality assurance tools using AWS Glue and Redshift
- Created comprehensive HTML reports with interactive charts using JavaScript libraries
- Led management of PostgreSQL database, executing complex queries to enhance data quality
- Executed AWS Glue jobs for analysing large-scale data, leveraging AWS SageMaker
- Automated data flow into graph database, constructing Python-based pipeline for JSON-LD transformation
- Automated data ingestion from S3 into Redshift using EC2 and Lambda functions
- Containerised Python scripts for data transformation, ensuring efficient and scalable processing

Data Engineer - Home Office - Data Services & Analytics

Sep 2021 - Feb 2023

Developed robust data systems and pipelines to enhance data processing efficiency and reliability. Implemented seamless data flows across operational systems, analytics platforms, and BI systems.

- Developed data systems and pipelines using Java Spring Boot
- Successfully resolved blocking issues and managed technical debt
- Implemented seamless data flows connecting operational systems and analytics platforms
- Delivered high-quality documentation using Confluence
- Developed analytical tools and programs using SQL
- Delivered high-quality code including unit tests, feature tests, and integration tests
- Worked effectively in agile environment as part of Scrum team

Business Analyst - Metropolitan Police

Jan 2022 - Apr 2022

Served as Business Analyst, facilitating meetings with over 50 clients to gather information and develop Power BI reports.

- Interfaced with stakeholders to understand and document business requirements

- Supported project team in mapping out end-to-end project lifecycle
- Provided detailed analysis, options and recommendations to stakeholders
- Contributed to strategic initiatives from inception to completion

Volunteer Experience

Member, Board of Trustees - Compass Collective

Nov 2020 - Present

Charity focused on raising awareness of lived experiences of refugees through performing arts.

- Championed charity mission ensuring efforts directly benefit the public
- Managed charity resources ethically and efficiently to maximise impact
- Upheld charity values through transparency and accountability

Key Industries

National Security | Central Government | Public Sector