

AMR ALFAYOUMY

SENIOR DATA SCIENTIST & AI/ML ENGINEER | PRODUCTION ML & MLOPS | LLMS, RAG & AI AGENTS | SAS & DATAKU CERTIFIED

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01 / PROFILE

Senior Data Scientist and AI/ML Engineer with 4+ years delivering production ML and enterprise AI across banking, telecom, government, and regulated environments. Developed behavioral anomaly-detection ML for Bank Muscat; transaction-level fraud-risk pipelines for CRDB Bank; credit-risk, graph-analytics, and propensity models for a multi-million-subscriber telecom environment; hybrid customer fraud-risk scoring for a fintech client; and multilingual government AI with 99.9% availability. Own delivery from client discovery and problem formulation through modeling, scalable engineering, MLOps, monitoring, stakeholder adoption, and team leadership; summa cum laude Computer Engineering graduate (GPA 3.92).

02 / WORK EXPERIENCE

ABG is the primary current full-time role; SAS Middle East and MAGNOOS are concurrent project-based subcontract engagements.

Data Scientist & AI/ML Engineer (Full-Time) - Accord Business Group (ABG) · Dubai, UAE (Remote) 08/2024 - Present

- Lead production delivery across multilingual conversational AI, automated reporting, fraud analytics, and enterprise AI, owning roadmaps, evaluation standards, launch readiness, technical risks, and handover.
- Translate customer needs into model and release plans while shaping RFPs, proposals, solution designs, demos, and proofs of concept for technical and nontechnical stakeholders.
- Lead junior data scientists and own production engineering across RAG, extraction, observability, CI/CD, security, and operations, enforcing automated testing, peer review, Git workflows, and SonarQube quality gates.

Data Science & AI Technical Consultant (Subcontractor) - SAS Middle East · Riyadh, KSA (Remote) 08/2025 - Present

- Lead technical discovery, model scope, behavioral anomaly detection, feature engineering, validation, alert-quality iteration, and implementation planning for regulated fraud and financial-crime programs.
- Implement full MLOps lifecycles spanning versioned training and scoring pipelines, automated retraining, validation gates, monitoring, explainability, production handover, and stakeholder walkthroughs.
- Deliver production integrations with SAS Anti-Money Laundering (AML) and SAS Fraud Management (SFM) within enterprise financial-crime workflows.

Senior Data Scientist (Subcontractor) - MAGNOOS - Midis Group (MAG) · Abu Dhabi, UAE (Remote) 11/2025 - Present

- Lead solution design, architecture, and execution planning for enterprise analytics modernization programs.
- Own production migration, parity validation, and modular pipeline design across distributed enterprise data platforms.
- Provide senior technical leadership across telecom churn, propensity, credit-risk, and graph-analytics programs, spanning scalable data pipelines, production validation, and MLOps standards.

Data Engineer (Full-Time) - Itplicity · Cairo, Egypt (Hybrid) 05/2024 - 11/2024

- Delivered NetSuite ERP/CRM integration and migration programs, improving data accuracy by 20% through validation, cleaning, reconciliation, and audit controls.
- Developed and optimized ETL pipelines, reducing processing time by 30% and establishing reliable, repeatable data foundations for analytics and machine-learning workflows.
- Coordinated cross-functional delivery and trained teams on data-management practices, strengthening data integrity and operational adoption.

AI Research Assistant (Full-Time) - Nile University · Cairo, Egypt (Hybrid) 03/2022 - 08/2024

- Led applied ML research from data collection, preprocessing, and exploratory analysis through experiment design, model development, optimization, and benchmarking.
- Evaluated classical machine-learning and deep-learning approaches using cross-validation, held-out testing, and reproducible comparisons.
- Documented methodology and findings and communicated results to technical and nontechnical audiences.

03 / SELECTED PROJECTS

CRDB Bank ML Fraud Detection · SAS · Tanzania 09/2025 - Present

- Designed and owned the data and model-engineering foundation for transaction-level fraud-risk detection across digital, branch, card, agency, and high-value payment channels.
- Led source integration, normalization, behavioral feature engineering, data-quality controls, and validated model-ready inputs for a large-scale, multi-channel banking environment.
- Implemented governed unsupervised anomaly detection in SAS Viya with reproducible preprocessing, versioned scoring artifacts, fixed training-derived controls, and a separated path for confirmed-fraud examples.
- Led redesign after a major source-system migration, rebuilding feature logic, lineage, validation evidence, explainability, deployment readiness, and the roadmap toward hybrid modeling.

Mobily AI/ML Modernization · MAGNOOS · KSA 10/2025 - Present

- Led migration and re-architecture of mission-critical telecom analytics, modernizing high-volume distributed pipelines while preserving logical and predictive parity for millions of subscribers.
- Took graph analytics from design through production, covering relationship aggregation, influencer features, community analysis, stable entity mapping, scalable processing, and governed delivery.
- Led device credit-risk and migration-propensity models end to end into production, materially improving credit-risk capture, and modernized churn, dormancy, and MNP retention models.
- Delivered related B2B pricing, segmentation, recommendation, and channel-propensity capabilities while establishing modular pipelines, rigorous parity validation, lifecycle separation, and maintainable production standards.

Bank Muscat Financial Crime · SAS · Oman 09/2025 - Present

- Developed and deployed production behavioral anomaly-detection models across conventional and Islamic banking segments as a governed end-to-end AML capability.
- Owned data engineering, behavioral features spanning account lifecycle and transactional and counterparty patterns, model development, batch scoring, explainability, operational integration, and production handover.
- Established pre-production algorithm comparison, domain-expert validation, threshold calibration, and champion/challenger evaluation covering detection quality, false positives, queue overlap, and investigator workload.
- Productionized risk-ranked alerts and plain-language narratives with recurring expert review, operational feedback, monitoring, scheduling, and retraining readiness.

EAD Mynd (Conversational AI) · ABG · UAE

11/2024 – 10/2025

- Architected and deployed a multilingual multi-agent chatbot and avatar platform serving approximately 500 daily interactions with 100% resolution, sub-4-second latency, 99.9% uptime, and routine handling reduced from roughly five minutes to four seconds.
- Led retrieval, embedding, prompt, and model experiments plus offline and live evaluation of quality, relevance, latency, language consistency, safety, intervention risk, and launch reliability.
- Owned the modular backend and knowledge lifecycle across ingestion, document processing, semantic retrieval, access controls, multilingual speech, dialogue and avatar orchestration, integrity validation, backup, and maintenance.
- Reduced inference cost by 60% through model, runtime, and caching optimization while sustaining concurrent interactions; achieved zero post-launch errors and delivered gated CI/CD, monitoring, recovery, security controls, operational APIs, and handover-ready documentation.

EAD State of Environment Report (SoER) Platform · ABG · UAE

10/2024 – 10/2025

- Helped architect and productionize a first-of-its-kind agent-based environmental reporting platform combining 6,000+ structured variables with multilingual reports and research, reducing production time from months to days.
- Built modular workflows for data analysis, ETL, KPI harmonization, OCR and document extraction, translation, narrative generation, summarization, and interactive question answering.
- Designed scalable orchestration separating data-intensive and AI-generation workloads, with data-integrity, hallucination, content-safety, and role-based access controls.
- Turned one-report automation into reusable, evidence-traceable infrastructure with automated quality and vulnerability gates, resilient services, centralized monitoring, formal handover, and repeatable executive-reporting workflows.

Fintech Payments Fraud Risk Scoring · Confidential Client · KSA

03/2026 – Present

- Engineered and productionized real-time onboarding and behavioral risk capabilities using validated multi-source signals and controlled routing for automated approval, review, or escalation.
- Designed hybrid customer fraud-risk scoring combining behavioral anomaly detection and supervised classification across multiple observation horizons.
- Built cohort-aware preprocessing, data-sufficiency controls, Population Stability Index monitoring, probability calibration, SHAP explainability, and calibrated investigation outputs before controlled production integration.
- Architected a 27-step SQL ETL framework for training and hourly scoring with incremental processing, 75+ engineered features, reproducible generation, lineage, execution controls, and orchestration, averaging roughly 10 minutes against a one-hour SLA.

04 / SELECTED RESEARCH & APPLIED ML

Real-time Cyber-Physical System (CPS) Security & Anomaly Detection (SWaT) · Cairo University · Egypt

08/2023 – 06/2024

- Engineered multivariate forecasting and supervised intrusion-detection pipelines for ICS: BiGRU achieved R^2 of 0.9990 and 96.11% of forecasts within 15% tolerance; optimized ensembles reached MAE of 1.1090 and 96.80% within tolerance; and CNN-LSTM and majority voting achieved 99.3% and 99.6% macro F1 for binary and multi-label cyberattack detection.

Real-time Human Activity Recognition Using Deep Learning · Nile University · Egypt

08/2022 – 02/2023

- Built and benchmarked ANN, CNN, LSTM, and CNN-LSTM models, achieving 98.95% accuracy and F1-score across five activities, and deployed a secure IoT inference and caregiver-monitoring pipeline with sub-2-second latency.

Real-time Indoor Positioning System using Machine Learning · Nile University · Egypt

09/2022 – 02/2023

- Evaluated 12 supervised methods and deployed Random Forest and voting ensembles achieving 84.12% F1-score for wireless patient tracking, integrating activity context and automated caregiver safety alerts.

Detection of COVID-19 from Chest CT & X-ray Scan Images · Nile University · Egypt

05/2020 – 07/2020

- Authored a research manuscript using 3,698 images, engineered complementary visual features, and deployed a web-based SVM/Random Forest voting ensemble reaching 99.6% X-ray and 98.2% CT accuracy while reducing false negatives.

05 / SKILLS

PRODUCT ML AND SCIENTIFIC LEADERSHIP Opportunity discovery, problem formulation, EDA, experimental design, champion/challenger evaluation, A/B testing, held-out validation, cohort analysis, threshold and model calibration, launch readiness, production measurement, roadmap ownership, and cross-functional decision-making.

MACHINE LEARNING AND STATISTICS Supervised, unsupervised, and semi-supervised learning; classification, regression, clustering, anomaly and fraud detection, forecasting, recommendation, behavioral analytics, hypothesis testing, cross-validation, hyperparameter tuning, and SHAP/LIME interpretability.

ALGORITHMS AND DEEP LEARNING Logistic regression, SVM, Random Forest, XGBoost, LightGBM, CatBoost, K-means, DBSCAN, Isolation Forest, neural networks, CNNs, RNNs, GRUs, LSTMs, and Transformers.

LLM, NLP, AND AI SYSTEMS RAG, embeddings, semantic search, prompt engineering, information extraction, text classification, translation, summarization, question answering, conversational AI, agentic workflows, speech recognition and synthesis, evaluation, and safety controls.

ML ENGINEERING AND MLOPS Reproducible feature/training pipelines, automated retraining, batch and real-time inference, REST APIs, deployment, automated testing, peer review, CI/CD, Git, SonarQube, Docker, Kubernetes, MLflow, feature stores, model registries, monitoring, data and concept drift management, governance, and operational handover.

DATA ENGINEERING AND ANALYTICS ETL, integration, validation, migration, modeling, distributed processing, Spark/PySpark, Airflow, SQL, Teradata, relational/NoSQL databases, statistics, visualization, Tableau, Power BI, and SAS Visual Analytics.

PLATFORMS AND TECHNOLOGY Python, SQL, SAS, Java, C/C++, PyTorch, TensorFlow, Keras, scikit-learn, Hugging Face, LangChain, LangGraph, vLLM, FAISS, Dataiku DSS, SAS Viya, SAS AML, SAS Fraud Management, AWS, Azure, Google Cloud Platform, FastAPI, Flask, Linux; working knowledge of JavaScript and Angular.

LEADERSHIP AND DELIVERY Technical discovery, RFP/proposal development, solution architecture, demos, proofs of concept, mentoring, stakeholder alignment, executive communication, documentation, regulated delivery, risk management, and end-to-end ownership.

06 / EDUCATION

BSc in Computer Engineering - Nile University · Giza, Egypt

08/2018 – 02/2023

Graduated highest honors (summa cum laude) with a cumulative GPA of 3.92.

07 / COURSES & CERTIFICATES

Machine Learning Using SAS Viya SAS	Dataiku MLOps Practitioner Dataiku	Dataiku ML Practitioner Dataiku	Dataiku Advanced Designer Dataiku
Advanced Data Analysis Nanodegree Udacity	AI Programming with Python Nanodegree Udacity	AWS Machine Learning Amazon Web Services via Coursera	Machine Learning Developer by Google Information Technology Institute (ITI)
Managing Machine Learning Projects with Google Cloud Google Cloud via Coursera	Neural Networks and Deep Learning DeepLearning.AI via Coursera	Machine Learning with Python IBM via Coursera	Machine Learning Foundations: A Case Study Approach University of Washington via Coursera
Machine Learning Fundamentals with Python DataCamp	Introduction to Machine Learning Duke University via Coursera		

08 / LANGUAGES

Arabic - Native Proficiency · English - Bilingual Proficiency (TOEFL ITP®: 603/677)