MAHMOUD HESHMAT

AI ENGINEER

Cairo, Egypt | mheshmat566@gmail.com | +20 111 826 6047
linkedin.com/in/mahmoud-heshmat-2455022b5/ | github.com/Mahmoud336u

PROFESSIONAL SUMMARY

AI engineer building machine learning applications, retrieval-augmented generation (RAG) pipelines, and tool-using agents with Python, FastAPI, and AWS. Delivered an end-to-end finance MVP and freelance data pipelines. AWS Certified Machine Learning Engineer - Associate with hands-on model evaluation, CI/CD, and cloud deployment experience.

TECHNICAL SKILLS

AI and ML: XGBoost, TF-IDF, Prophet, PyTorch, TensorFlow, MLflow, RAGAS
Generative AI: RAG, LangGraph, ReAct agents, tool calling, Amazon Bedrock, embeddings, pgvector
Engineering: Python, SQL, FastAPI, REST APIs, PostgreSQL, Docker, pytest, GitHub Actions, Terraform
Cloud and data: AWS ECS Fargate, ECR, RDS, S3, Spark/PySpark, Airflow, Great Expectations, Prometheus

EXPERIENCE

AI/ML Engineer | Independent Product and AI Engineering | Mar 2025 - Present

Meridian Personal Finance Assistant | Personal/beta MVP

- Built a FastAPI application with Plaid Sandbox ingestion, test-account linking, categorized transaction dashboards, and monthly spending forecasts; deployed on AWS ECS Fargate with local Docker Compose support.
- Achieved approximately 0.94 macro-F1 using XGBoost, TF-IDF transaction descriptions, and merchant category codes on approximately 75,000 sandbox and synthetic records with a chronological holdout.
- Evaluated Prophet forecasts with MAPE below 6% for stable spending categories, including utilities and groceries; tracked model experiments with MLflow.
- Automated pytest checks, Docker builds, and ECR publishing with GitHub Actions; managed ECS deployments with Terraform and monitored services with Prometheus.

Data Analyst | Freelance | Nov 2024 - Feb 2025

E-commerce and telecom clients

- Built three Spark ETL pipelines and repaired a fourth, integrating four CRM/ERP sources and processing approximately 100 GB per daily run with S3, Kafka/MSK, Airflow, and Great Expectations.
- Designed PostgreSQL star schemas and incremental UPSERTs; reduced a core batch runtime from 4.5 to 1.5 hours on comparable workloads.
- Delivered customer segmentation, churn analysis, and Tableau dashboards; handed over DAGs, runbooks, and validation logs to client IT/Data Ops teams.

SELECTED PROJECT

AI Multi-Agent Platform | Independent project

- Built RAG with Claude 3.5 Sonnet on Amazon Bedrock, Titan Embeddings V2, and PostgreSQL/pgvector, using HNSW search and metadata filtering.
- Evaluated retrieval and answer quality with RAGAS on 50 curated query-context pairs; implemented a LangGraph ReAct agent with SQL and vector-search tools, schema mapping, and few-shot SQL examples.
- Added conditional recovery for SQL errors, allowing up to three correction attempts before controlled failure.

CERTIFICATIONS

AWS Certified Machine Learning Engineer - Associate | 2026
IBM AI Engineering Professional Certificate | MLOps Specialization, Duke University

EDUCATION AND LANGUAGES

Bachelor of Engineering, Computer Engineering | El Shorouk Academy | 2026
Arabic: Native | English: Professional working proficiency | German: B1