

MOHAMED EHAB EL MOLLA

Machine Learning & MLOps Engineer | Applied AI, NLP & Cloud Infrastructure

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PROFESSIONAL SUMMARY

Artificial Intelligence BSc graduate and **first-author IEEE researcher** building ML pipelines, RAG, NLP, and on-device AI. Combines transformer fine-tuning and optimization with AWS, Docker, CI/CD, PostgreSQL/pgvector, and cloud/on-premise infrastructure.

PROFESSIONAL EXPERIENCE

Prosoft | Infrastructure Specialist (Cloud & Virtualization)

Aug 2026 - Present

- Lead evaluations of **Scale Computing HyperCore** and **Platform9 Private Cloud Director** for enterprise VMware migrations. Design highly available compute, storage, and networking; size bare-metal/private-cloud clusters and translate fault-tolerance and hybrid-cloud needs into architectures across government, manufacturing, and industrial accounts.

BARQ Systems | DevOps & Infrastructure Engineer Intern

Aug 2025

- Automated deployment workflows with **Docker** and **CI/CD**; supported Linux administration, networking, and infrastructure monitoring for scalable enterprise deployments and consistent environments.

CLS Learning Solutions | Machine Learning Engineer Intern

Apr 2025 - Jul 2025

- Built classification and predictive pipelines with **Python**, **Scikit-learn**, **XGBoost**, and **Pandas**, covering validation, feature engineering, and cross-validation; used **Optuna**, ROC-AUC/Macro-F1, and experiment/artifact tracking for reproducible models.

RESEARCH & PUBLICATIONS

First Author | IEEE IMSA 2026

Jul 2026

Automatic Model Selection and Sign-Aware Multiplicative Sentiment Modulation for Algorithmic Trading

- Fine-tuned **DeBERTa-finance** on Financial PhraseBank: **94.2% accuracy**, **0.9420 macro-F1**, and **+5.0 percentage points** over FinBERT on a held-out stratified split. Automated model selection using accuracy, macro-F1, and ordinal MAE.
- Developed sign-aware multiplicative sentiment/price fusion to scale conviction while preserving long/short trade direction.

FEATURED AI & ENGINEERING PROJECTS

Agentic E-Trading Engine (Graduation Thesis)

2026

- Built autonomous paper trading in a 5-person team using **Python**, **XGBoost + ElasticNet**, **contextual epsilon-greedy bandits**, **PostgreSQL**, and **Alpaca API**; adapted position sizing to after-cost P&L. Added **7 deterministic risk layers** including drawdown throttling, kill switch, end-of-day flattening, and exposure caps, plus drift monitoring, idempotent orders, and crash recovery.

GAIN | AI-Powered Strength Training Platform

2026

- Built an offline-first **TypeScript/React Native/Expo** app with personalized workouts, next-session progression, and live fatigue-based adaptation. Combined **SQLite**, schema validation, deterministic logic, and **on-device ML** for cloud-independent operation.

RAGBase | Production AWS RAG Platform

2026

- Deployed RAG with **FastAPI**, **RDS PostgreSQL 16/pgvector (IVFFlat)**, **S3**, **Streamlit**, **Docker Compose**, and **GitHub Actions**. Tuned chunking, embeddings, and hybrid retrieval; configured **4 GB swap** and container limits for a **2 GB RAM EC2** instance.

MALIK | Long-Form Arabic ASR & AI Video Clipping Pipeline

2025 - 2026

- Built a **Python/yt-dlp/Whisper.cpp** pipeline with overlapping audio chunks and Arabic normalization benchmarked on **FLEURS**. Used a **Groq LLM** agent to select semantic hooks and **FFmpeg** to render captioned vertical clips with dynamic framing.

Competitor Price Intelligence Pipeline

2026

- Automated daily pricing and change detection across **17 Egyptian retail brands** using **Python**, **Playwright**, and **Shopify APIs**; stored historical time series in **Supabase/PostgreSQL** through scheduled **Render** cloud jobs.

EDUCATION & CERTIFICATIONS

BSc in Artificial Intelligence | ESLSCA University, Cairo, Egypt

2023 - Jun 2026

Coursework: Machine Learning, MLOps, Deep Learning, NLP, Time Series Forecasting, Computer Vision.

Scale Computing: Technical Professional Certification (TPC), Infrastructure & Data Center Architecture, Sales Professional.

TECHNICAL SKILLS

ML & AI: PyTorch, TensorFlow/Keras, Scikit-learn, XGBoost, Hugging Face Transformers, Reinforcement Learning, Optuna.

LLMs & NLP: RAG, pgvector/IVFFlat, Whisper ASR, Ollama, OpenAI/Groq APIs, Semantic Chunking, Model Evaluation.

MLOps & Infrastructure: AWS (EC2, RDS, S3), Docker/Compose, GitHub Actions, MLflow, DVC, Airflow, Linux, Kubernetes.

Languages & Frameworks: Python, SQL, TypeScript/JavaScript, C, FastAPI, React Native/Expo, Streamlit, Playwright.

Databases & Data: PostgreSQL, SQLite, Supabase, Pandas, NumPy, Pandera.