

Radwa Khattab

Senior AI Engineer | Agentic AI | Multi-Agent Systems | LLMs | AI Platforms | MLOps | Ex-Microsoft

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Professional Summary

Senior AI Engineer and Applied Data Scientist with 6+ years of experience building production AI systems across Agentic AI, multi-agent systems, LLM/SLM applications, machine learning, and cloud-native platforms. Ex-Microsoft, where I developed production agentic capabilities for Microsoft Shopping using A2A, MCP, and Semantic Kernel. Experienced in AI platform architecture, LLM applications, retrieval workflows, Azure ML, FastAPI, Python, and scalable data/ML pipelines, with published research in Vision Transformers and emotion recognition.

Technical Skills

AGENTIC AI & LLMs: Agentic AI · Generative AI · Multi-Agent Systems · Multi-Agent Platform · LLMs · SLMs · A2A Communication · Semantic Kernel · AI Agents · Prompt Engineering · LLM Applications · Retrieval-Based AI · RAG · LangGraph · LangChain · MCP (Model Context Protocol) · Multi-Agent Orchestration · Tool Calling · PII Filtering · Intent detection · Safety Guards

AI / MACHINE LEARNING: Machine Learning · Deep Learning · NLP · Computer Vision · Vision Transformers · Anomaly Detection · Model Fine-Tuning · PyTorch · TensorFlow · Keras · OpenCV · CUDA · Azure ML · MLflow · DVC · Azure ML Pipelines · Model Training · Model Evaluation · Data Pipelines · ML Experimentation · ONNX · Unsloth · Model Deployment

BACKEND, API & AI SERVICES: Python · FastAPI · REST APIs · Asyncio · Pydantic · JWT auth · PostgreSQL · SQL · .NET · JavaScript · TypeScript

CLOUD, MLOps & INFRASTRUCTURE: Microsoft Azure · Azure Data Factory · Azure Databricks · Azure AI Foundry · Azure DevOps · Docker · Cloud-Native Architecture · AWS · Microservices · Private Networking · Private DNS · Azure Key Vault · MLOps · LLMops

DATA & ANALYTICS: PostgreSQL · PySpark · Pandas · NumPy · SciPy · Power BI · Data Cleaning · EDA · Data Analysis · Monitoring · OpenTelemetry

DEVOPS & DEVELOPMENT: CI/CD · GitHub · GitLab · Github Actions · Docker · Automated Testing · Deployment Automation

PROGRAMMING: Python · SQL · C++ · C# · JavaScript · TypeScript · R

Professional Technical Experience

Senior AI Platform Engineer | Proxify – Sweden, Remote, Project-contract

May'26 — Aug.'26

- Led the **end-to-end architecture and development** of an AI-powered performance intelligence platform spanning **AI services, backend architecture, data modeling, analytics, cloud infrastructure, CI/CD, and testing**.
- Designed and implemented a production-scalable **AI coaching agent** using **Azure OpenAI** and **FastAPI**, supporting **intent detection, contextual retrieval, structured data querying, multi-step workflows, personalized reasoning, and grounded response generation**.
- Built an **intent-based contextual retrieval layer** combining user profiles, wellbeing dimensions, habits, health indicators, methodology content, FAQs, and root-cause drivers to deliver **personalized responses without vector embeddings**.
- Redesigned the data layer from a deeply nested **MongoDB architecture spanning 55 collections** to a normalized **PostgreSQL schema with 20+ relational tables**, redesigning **data models, relationships, indexing, JSONB usage, and referential integrity**.
- Implemented **AI service safety, privacy, and reliability controls**, including **PII protection, GDPR compliance, role-based database access, controlled data retrieval, validation, logging, auditing, and graceful degradation**.
- Rebuilt the legacy Ruby analytics engine as a Python-based **calculation and analytics microservice** supporting **performance, wellbeing, health, productivity, engagement, and turnover-risk analytics**.
- Exposed AI coaching and analytics capabilities through **FastAPI microservices**, using **Pydantic, Docker, and Azure Container Apps**.
- Designed **Azure DevOps CI/CD pipelines** with **PR validation, automated pytest execution, Docker/ACR builds, environment-specific deployments, health checks, and failure diagnostics**, supported by comprehensive **unit and integration testing**.
- Modernized the platform from an over-engineered **Databricks architecture to a streamlined PostgreSQL-based cloud architecture**, reducing **cloud infrastructure costs by approximately 99%** while improving maintainability and operational simplicity.

Applied & Data Scientist | Agentic AI Engineer | Microsoft – Egypt, Hybrid May'24 — May'26

- Contributed to Microsoft's **Agentic Shopping Platform**, developing and integrating **multi-agent workflows** for shopping experiences using **A2A (Agent-to-Agent) communication**, **Semantic Kernel**, and **MCP (Model Context Protocol)**-based integrations. The platform was deployed to **production and integrated with Copilot's backend**.
- Developed **Semantic Kernel plugins** and agent-callable capabilities to connect AI agents with shopping and product services, including the **Other Buying Options** experience and related enterprise workflows.
- Integrated agent workflows with **MCP servers and gateway-based communication**, enabling structured access to external capabilities and services within **production multi-agent AI workflows**, with **Pydantic-based schema validation** for structured inputs and outputs.
- Designed and implemented a fine-tuned **Small Language Model (SLM)** pipeline using **Azure Machine Learning**, supporting **10 distinct scenarios with configurable inputs without code or pipeline modifications**, enabling reusable model fine-tuning and inference workflows while reducing reliance on GPT-based inference.
- Contributed to onboarding **10M+ product variants** through an **Azure ML product-page extraction and data processing pipeline**, supporting the hierarchical **Product → Variant → Offer** model and expanding catalog coverage across **Microsoft Shopping and Copilot**.
- Implemented a **statistical price validation and anomaly detection method** using historical product prices to flag anomalous price updates before storage, improving **data quality and reliability** across shopping experiences.
- Built a cross-team analytics platform using **Azure Data Factory** and **Power BI**, providing automated product insights, monitoring, and debugging capabilities for product managers and engineering teams.

AI Engineer | Ejada – Egypt, Hybrid / Saudi Arabia, Remote Jan.s'23 — Jan.'24

- Developed a **time-series Transformer model using PyTorch** to predict Saudi stock prices up to **three days ahead**, using historical OHLC data with feature engineering, normalization, and scaling.
- Built an automated **fine-tuning and evaluation pipeline** using market data from **Yahoo Finance** and internal Saudi-market data, evaluating predictions with **MAE and $\pm 1\%$ price-tolerance accuracy**.
- Built the MVP end-to-end with **Node.js, REST APIs, Docker, data visualization, and an on-premises GPU environment**, exposing the trained model through a prediction API and demonstrating results with a **Bank Al Rajhi** stakeholder.

Machine Learning Engineer | Silverkey Technologies – Egypt, Hybrid Jan.'20 — Dec.'22

- Proposed and developed a **Vision Transformer + Temporal Convolutional Network (ViT-TCN)** for **video-based multi-emotion recognition**, owning dataset preparation, model development, training, experimentation, and evaluation using **PyTorch**.
- Collaborated with **Zewail City and ITIDA** on the research program, contributing to the resulting **Springer-published research paper**.
- Developed **computer vision and video analytics** solutions for billboard detection, advertising analysis, and **3D spatial reconstruction** using **YOLO, PyTorch, OpenCV, image segmentation, and Blender**.

Publications

[ViTCN: Hybrid Vision Transformer with Temporal Convolution for Multi-Emotion Recognition](#) · Springer · 2024

Teaching Experience (Part-time)

TA — Nile University & Cairo University · Session Lead — Udacity · ML Instructor — AMIT Learning

Education

Master of Science in AI, Computer Engineering — Cairo University · Expected 2027

Bachelor of Science in Computer Engineering — Cairo University · 2021 · Excellent (85%)

Language

• **English:** C1—Advanced (TOEFL)

• **Arabic:** Native