Mostafa Samy

AI Engineer & Data Scientist

Email: mustafasamy28@gmail.com   **Mobile:** +201028319530   **Location:** Giza, Egypt   LinkedIn   GitHub
Portfolio

Summary

AI Engineer & Data Scientist with 3+ years of experience delivering end-to-end ML and LLM solutions across vision, NLP, and predictive analytics, improving model performance by up to 32%. Skilled in MLOps, scalable deployment, and real-time inference using Docker, MLflow, and cloud platforms. Specialized in LLM engineering and agentic systems, building production-ready AI solutions that turn complex business needs into high-impact results.

Education

ITI Professional Training Program Specialized in AI   10/2023 – 06/2024

self-directed learning effort (ITI curriculum)   Cairo, Egypt

Bachelor's degree in computer and information sciences, Assuit University   09/2018 – 01/2023
Department: Bioinformatics.   Assuit, Egypt
CGPA: Very Good

Professional Experience

AI Trainer (Part Time), Invisible Technologies   **10/2025** – Present
My responsibilities included: Remote, Giza, Egypt

- Trained and evaluated AI models to improve reasoning, accuracy, and alignment with real-world tasks.
- Contributed to dataset curation, prompt optimization, and quality assessment for LLM-based systems.
- Provided structured feedback to improve model behavior and reliability in production scenarios.

Freelance Data Scientist (Projects via UpWork, Mostaql, referrals)   02/2023 –Present
Developed and deployed ML models including classification, regression, clustering, AI agents, RAG systems, and fine-tuning with emphasis on EDA, feature engineering, and business impact. Delivered end-to-end pipelines for projects such as

- **Intelligent FAQ Assistant with RAG** Built RAG system using GPT-4, FAISS, and LangChain. Automated 70% of support queries, achieving 92% accuracy and saving $250K annually.
- **Restaurant Intelligence**: Location optimization, delivery delay prediction, and demand-based recommendations.
- **Inventory App**: YOLO-powered desktop app with object detection, camera tracking, NFCs, and live dashboards.

AI Instructor | Mobica International School (Full Time), Mobica   08/2024 –10/2025
My responsibilities included: Onsite, Giza, Egypt

- Delivered courses in SQL, data analysis, Power BI, and ML with 95% student satisfaction.
- Mentored 50+ students building real-world AI applications including computer vision (YOLO/CNNs) and LLM solutions for text generation and Q&A systems.
- Led production-ready AI systems using OpenCV, transformers, and NLP pipelines for business problems. Applied MLOps practices: model tracking, versioning, and deployment using Git, MLflow, and Docker.

Technical Skills

Languages & Libraries: Python, SQL, C++, Java, HTML, CSS, Pandas, NumPy, Matplotlib, Seaborn, OpenCV, PyTorch, TensorFlow, Scikit-learn, Hugging Face Transformers NLTK, SpaCy.

Classical NLP: Tokenization, POS tagging, NER, Sentiment Analysis, Text Classification, Topic Modeling.

Agents & Generative AI: Fine-tuning & evaluating Transformers (BERT, GPT-2, T5), Distilled Models, RAG, Agentic workflows, Prompt engineering, Function-calling, LLMOps, Multi-modal AI, Autonomous Agents, OpenAI SDK, CrewAI, AutoGen, MCP.

Projects & Applications: Brochure generator, Meeting summarizer from audio, Python-to-C++ translator, Airline support agent, RAG-powered knowledge systems, Price prediction, Deal-spotting agents, Career Digital Twin, SDR Agent, Deep Research, Stock Picker Agent, 4-Agent Engineering Team, Operator Agent, Agent Creator, Trading Floor with autonomous

Agents.

MLOps & Deployment: MLflow, Docker, Streamlit, Git, REST APIs, FastAPI, Model tracking & versioning, Cloud (AWS, GCP).

Data Engineering & Analysis: ETL Pipelines, EDA, Feature Engineering, Time Series Forecasting, Clustering

Tools & Platforms: Jupyter, Google Colab, VS Code, Cursor, GitHub, Postman, Microsoft Power BI, PyQt6.

Concepts: Supervised/Unsupervised Learning, Deep Learning, Transformers, Transfer Learning, Model Evaluation.

Projects

Multi-Agent AI Trading System - Autonomous Platform

- Technologies: OpenAI Agents SDK, MCP (Model Context Protocol), Polygon.io API, SQLite, Gradio, Python 3.11+.
- Built autonomous multi-agent trading platform where 4 AI traders (Warren/value, George/macro, Ray/systematic, Cathie/crypto) execute 100+ daily trades managing $10K portfolios.
- Architected 6 custom MCP servers delivering 44 specialized tools for account management, market data integration, web research, and persistent knowledge graphs.
- Engineered real-time dashboard with Gradio featuring live portfolio tracking, transaction history, and color-coded agent activity monitoring with < 50 sec latency.
- Integrated Polygon.io market data API with fallback mechanisms, Brave Search for market intelligence, and Pushover notifications for critical trading alerts.

AI-Powered Automated Brochure Generation Platform

- Technologies: Python, Gradio, BeautifulSoup4, OpenAI GPT-4o-mini, HTML/CSS.
- Designed an end-to-end intelligent system that scrapes corporate websites, analyzes content with LLMs, and generates fully structured marketing brochures.
- Achieved high-precision content extraction, real-time AI generation UX, and a production-ready pipeline with robust link detection and clean UI/UX design.

MLOps: House Prices Prediction With Automated Pipeline

- Technologies: Scikit-learn, XGBoost, Docker, CI/CD .
- Created end-to-end ML pipeline with automated preprocessing, reducing feature preparation time by 15%. Implemented ensemble approach achieving RMSE of 0.124, outperforming benchmarks by 12%
- Built model monitoring dashboard with automated retraining capability .
- Deployed as containerized microservice with robust CI/CD integration .

Classification: Customer Churn Prediction

- Technologies: Scikit-learn, SMOTE, Model Stacking
- Addressed class imbalance using SMOTE, improving recall by 25%
- Engineered 20+ domain-specific features capturing customer behavior patterns
- Implemented stacked ensemble achieving 92% F1-score, 20% better than previous solutions
- Solution reduced customer attrition by 15% when implemented by business team

Courses & Workshops

- AI Engineer MLOps Track: Deploy Gen AI & Agentic AI at Scale, Udemy   12/2025
- AI Engineer Agentic Track: The Complete Agent & MCP Course, Udemy   11/2025
- LLM Engineering: Master AI, Large Language Models & Agents, Udemy   10/2025
- 2025 Fine Tuning LLM with Hugging Face Transformers for NLP, Udemy   08/2025
- NLP - Natural Language Processing with Python, Udemy   07/2025
- AI Programming With Python Nanodegree, Udacity   11/2022
- SQL for Data Science, University of California Davis   08/2021
- Data Visualization and Dashboards with Excel and Cognos, IBM   05/2021
- Excel Basics for Data Analysis, IBM   05/2021

Languages

- **Arabic:** Native.   **English:** Proficient.