

Mostafa Kamal Mohamed

Data Science

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Summary

Ambitious and results-driven Data Science graduate with 1 year of practical experience in Machine Learning, Deep Learning, and Data Analysis. Demonstrated strong leadership as the team lead for multiple academic and AI-based projects. Led the InkSentinel team to 1st place in GDC Assiut 2024, a regional competition for students and graduates across Upper Egypt, with an innovative signature verification system using Siamese Networks and EfficientNet. Currently focused on Agentic AI, LLMs, and smart chatbot systems using LangChain and local models like LLaMA. Passionate about building intelligent solutions that solve real-world problems and creating positive impact through AI.

Work History

Digital Egypt Pioneers Initiative (DEPI)
AI & Data Science Trainee (Full-Time) — October 2024 – May 2025

- Completed full-time AI & Data Science training in partnership with EYouth and the Ministry of Communications.
- Led a graduation project to build a Customer Churn Prediction System integrated with a smart AI chatbot using Python, scikit-learn, and LangChain.
- Gained practical experience in machine learning, data preprocessing, and model deployment.
- Collaborated in group-based learning and served as team leader for the DEPI graduation team.

Cisco Networking Academy
IT Trainee (Remote) — February 2023 – January 2024

- Studied the fundamentals of computer networking as part of the CCNA track.
- Gained practical understanding of networking protocols, configuration, and troubleshooting.
- Developed foundational IT and problem-solving skills.

IT Specialist Internship
Device Configuration & Management Trainee (Remote) — July 2024 – September 2024

- Trained on device setup, system configuration, and IT support fundamentals.
 - Acquired essential knowledge of computer hardware, security basics, and infrastructure.
 - Applied skills in system management and technical documentation.
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Leadership Experience

- Team Leader – InkSentinel Project (Graduation Project – EELU)
 - Competition Team Leader – GDC Assiut 2024 (1st Place Winner)
 - Group Leader – DEPI Graduation Group (Students & Projects Coordination)
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Education

Bachelor's Degree in Information Technology

Certifications

- AI & Data Science Track – Digital Egypt Pioneers Initiative (DEPI)
October 2024 – May 2025
Covered machine learning, deep learning, Python, data visualization, model deployment, and real-world projects.
 - Device Configuration and Management – IT Specialist
July 2024 – September 2024
Focused on system setup, troubleshooting, and networked device configuration.
 - CCNA: Introduction to Networks – Cisco Networking Academy
February 2023 – January 2024
Learned network fundamentals, routing, switching, and basic IP configuration.
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Achievements

- First Place, GDC Assiut 2024 (December 2024)
 - Delivered 5+ technical sessions within DEPI peer community to support AI learning.
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Projects

InkSentinel – Intelligent Signature Verification System
Graduation Project – Egyptian E-Learning University
August 2024 – June 2025

- Led the development of a complete AI-powered solution for detecting and explaining signature forgery.
- Built a Siamese Network using EfficientNet for comparing real vs. forged handwritten signatures with over 90% accuracy.
- Deployed the model using TorchScript for optimized performance on mobile devices.
- Integrated a smart AI chatbot powered by LLaMA 3.2 to educate users on types of forgery and protection techniques.
- Served as project leader, overseeing design, data handling, deep learning, and application flow.
- Awarded 1st Place in GDC Assiut 2024 among students and graduates across Upper Egypt.

Customer Churn Prediction + AI Support Chatbot
Graduation Project – Digital Egypt Pioneers Initiative (DEPI)
February 2025 – May 2025

- Developed a full-cycle AI solution combining churn prediction and intelligent customer support.
- Trained a Random Forest classifier that achieved 84% accuracy in predicting churn using behavioral and demographic data.
- Built an interactive AI chatbot using LangChain and LLaMA 3, integrated with Retrieval-Augmented Generation (RAG) to provide realistic, context-aware responses.
- Implemented MLOps practices including MLflow for experiment tracking, model versioning, and automated re-training workflows.
- Established a basic monitoring system to track model performance and trigger retraining based on updated data.
- Reduced manual churn analysis workload by 40% through automation.

- Acted as team leader, overseeing all project phases from model development to deployment and monitoring.

Online Library System

DEPI AI Mini Project – January 2024 – February 2025

- Created a web-based digital library system to simplify access to books and author information.
- Designed relational database structure using SQL and built a user interface with Streamlit.
- Implemented features for login/signup, book availability, wishlist, and borrowing history.
- Managed 300+ book entries with searchable metadata for users.
- Focused on building efficient data flow and an intuitive user experience.

Student Performance Analysis

Data Science Mini Project – February 2025

- Conducted an end-to-end data analysis to identify key factors influencing student academic performance.
- Performed data cleaning, preprocessing, and exploratory data analysis (EDA) using pandas, seaborn, and matplotlib.
- Discovered significant correlations between parental education, test preparation, and student scores.
- Visualized insights using comparative plots, histograms, and correlation heatmaps.
- Presented results to a peer group, gaining feedback and validation.
- Delivered findings in a well-structured presentation report, including actionable recommendations to improve student outcomes.

Technical Skills

Machine Learning & Deep Learning

- Experienced in supervised learning (classification, regression) and model evaluation.
- Worked with deep learning models such as Siamese Networks, CNNs, and EfficientNet.
- Familiar with MLOps practices using MLflow for model tracking and retraining.

Data Analysis & Visualization

- Strong in EDA and data wrangling using pandas, NumPy, and matplotlib.
- Created analytical dashboards using Power BI, Excel, and seaborn to drive insights.

Programming & Frameworks

- Proficient in Python for data analysis, ML modeling, and automation tasks.
- Worked with scikit-learn, PyTorch, and LangChain for building intelligent systems.

Version Control & Deployment

- Experienced with Git, GitHub, and using TorchScript for model deployment in production environments.
- Familiar with Flask for building basic APIs and model integration.

Data Management

- Practical experience with SQL and relational databases such as SQLite and PostgreSQL.
- Designed and queried structured data for real-world projects (library systems, churn analysis).

AI & Language Models

- Applied LangChain with LLaMA 3.2 for building smart retrieval-based AI chatbots.
- Explored RAG pipelines for domain-specific chatbot solutions.

Tools & Platforms

- Jupyter Notebook • VS Code • Google Colab • Streamlit • MLflow
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Soft Skills

Leadership • Teamwork • Communication • Critical Thinking • Problem Solving • Adaptability

Languages

- Arabic: Native
 - English: Intermediate (B1)
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Volunteering

Group Leader – Digital Egypt Pioneers (DEPI)

Ministry of Communications & EYouth — October 2024 – May 2025

- Led the main student group during the DEPI scholarship program, acting as the primary point of contact between participants, EYouth, and the Ministry.
- Facilitated communication and helped resolve challenges related to academic progress, scheduling, and technical support.
- Fostered a supportive and collaborative environment among students to ensure successful project completion.
- Played a key role in aligning team efforts with program expectations through regular coordination and feedback sharing.