Mahmoud Khaled Mahmoud Bayoumi

Data Scientist

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Professional Summary

Results-driven Aviation Information Systems graduate from Zagazig National University with hands-on expertise in Data Science, Machine Learning, and Business Intelligence. Proficient in developing end-to-end data solutions—from automated ETL pipelines and SQL database optimization to training predictive models and deep learning architectures (CNNs, LSTMs, YOLO, ResNet). Proven track record in deploying interactive AI tools via Streamlit and Hugging Face, alongside delivering high-impact BI dashboards using Power BI, Plotly, and Seaborn. Combines deep aviation domain insights from practical training at Dream Liner, NANSC, and the Egyptian Space Agency with rigorous certifications from Instant Academy, DEPI, Google, and Microsoft. Eager to drive operational efficiency and predictive analytics in innovative, data-driven environments.

Education

Bachelor of Science in Aviation Information Systems Faculty of Computers and Information 10/2022 – 07/2026 | 10th of Ramadan City, Egypt
Zagazig National University (ZNU)
GPA: 3.70 out of 4

Experience

Artificial Inteligence (AI) Trainee, *Instant Software Solutions* 07/2025 – 07/2026 | Online

- Implemented end-to-end machine learning and deep learning pipelines (Regression, Ensembles, ANNs, CNNs, YOLO/ResNet) backed by rigorous statistical and mathematical foundations.
- Engineered interactive AI applications using Streamlit and Hugging Face APIs to deploy computer vision and sequence models.
- Built scalable ETL workflows, automated web-scraping scripts, and optimized SQL Server databases to extract and process complex datasets.
- Performed advanced data processing and OOP design in Python (Pandas, NumPy), creating dynamic visualizations and reporting systems using Plotly, Seaborn, and Power BI.

Business Analyst Intern, *Dream Liner Aviation Services Consultancy* 08/2025 – 09/2025 | Cairo, Egypt (Hybrid)

- Developed a Python (Streamlit & Selenium) application that automated aviation market research, eliminating manual workflows.
- Designed Power BI dashboards profiling airline fleets and stakeholder contacts using cleaned datasets.
- Delivered structured reports for C-Suite planning that enhanced market visibility and identified ACMI opportunities.

Data Science & Machine Learning Trainee 10/2024 – 05/2025 | Zagazig, Sharqia (Hybrid)
Digital Egypt Pioneers Initiative (DEPI)

- Completed 6-month intensive program developing analysis projects using Python, Power BI, and machine learning models.
- Engineered a Sales Forecasting system using 8,524 records, evaluating 5 algorithms to select the optimal model.
- Deployed the solution using Streamlit with MLOps integration (MLflow).

Aviation Operations Intern, *National Air Navigation Services Company (NANSC)* 02/2025 | Cairo International Airport, Cairo

- Completed intensive training in aviation operations, navigation systems, airport management, and air traffic control.
- Participated in field visits to control tower and area control facilities for hands-on exposure to aviation systems.

Space Technology Trainee, *Egyptian Space Agency (EgSA)* 09/2024 | New Cairo, Cairo

- Completed practical training in satellite systems, space technology applications, and aerospace operations.

Courses & Certifications

Artificial Inteligence (AI) Diploma, *Instant Software Solutions* 07/2025 – 07/2026

Google Advanced Data Analytics, *Coursera* 03/2025 – 09/2025

Artificial Intelligence Summer Internship, *Information Technology Institute (ITI)* 06/2025 – 07/2025

AI & Machine Learning, *Sprint & Microsoft Summer Camp* 06/2025 – 07/2025

Getting Started with Deep Learning, *NVIDIA Deep Learning Institute* 07/2025

Artificial Intelligence Ambassadors Program, *National Telecommunication Institute (NTI)* 04/2025 – 05/2025

Artificial Intelligence Training Program, *British University in Egypt & Impact Platform* 02/2025

Algorithm and Problem Solving, *IT Legend Academy* 01/2025

Projects

Heart Disease Prediction System 06/2025 – 07/2025
Built a machine learning system to predict heart disease, evaluating 7 algorithms and achieving 90.16% accuracy with Naive Bayes, then deployed an interactive Streamlit application for real-time predictions.

Tools & Technologies: Python, Pandas, NumPy, Scikit-learn, XGBoost, Naive Bayes, Streamlit, MLflow, Matplotlib, Seaborn

Flight Analysis and Delay Prediction 03/2025 – 05/2025
Developed a comprehensive flight delay analysis system by designing a relational SQL Server database, cleaning flight data using Python (Pandas, NumPy), and creating an interactive Power BI dashboard. Analyzed major delay causes, airline performance, and airport efficiency, providing actionable insights for optimizing operational performance and predicting potential delays.

Tools & Technologies: SQL Server, Power BI, Python (Pandas, NumPy, Matplotlib, Seaborn), BULK INSERT

Sales Forecasting and OptimizationSales 02/2025 – 04/2025
Engineered a time-series forecasting system to predict retail and e-commerce sales trends, evaluating 5 algorithms (Linear Regression, Decision Tree, Random Forest, XGBoost, CatBoost) on 8,524 records with 18 features. Achieved optimal forecasting accuracy by conducting comprehensive data preprocessing, EDA, and feature engineering. Deployed the solution using Streamlit with MLOps integration (MLflow) for model tracking and monitoring, enabling data-driven decision-making for strategic planning.

Tools & Technologies: Python, Pandas, NumPy, Matplotlib, Seaborn, Plotly, Power BI, Scikit-learn, Statsmodels, XGBoost, CatBoost, TensorFlow/Keras, ARIMA, SARIMA, Facebook Prophet, Streamlit, MLflow.

SuperMarket Sales Analysis 02/2025
Created an interactive Power BI dashboard analyzing sales trends, customer behavior, and product performance across branches, enabling data-driven inventory and marketing decisions through dynamic filtering and actionable insights.

Tools & Technologies: Power BI, Python (Pandas, NumPy), DAX

E-Book Libary DataBase 04/2024 – 06/2024
Designed a MySQL database for an e-library system with user registration, book categorization, reading history, reviews, and favorites, implementing foreign key constraints to ensure data integrity.

Tools & Technologies: MySQL, SQL, Database Design

Skills

Technical Skills:

Programming & Libraries: Python (Pandas, NumPy, Matplotlib, Seaborn, Plotly, Scikit-learn, TensorFlow), SQL (MySQL, SQL Server), Git & GitHub

Data Analysis & Visualization: Power BI (DAX, Power Query), Excel, Data Cleaning & Preprocessing, EDA, Statistical Analysis

Machine Learning & Deployment: Supervised Learning (Linear Regression, Decision Trees, Random Forest, XGBoost, CatBoost) , MLflow, Streamlit

Database & Automation: Database Design & Modeling, Web Scraping (Selenium)

Aviation & Other: Aviation Information Systems (AIS), Air Traffic Control (ATC) Operations, Networking Basics, Algorithms & Problem Solving

Soft Skills:

- **Strong Communication & Team Collaboration**
- **Fast Learner & Adaptable**
- **Analytical & Creative Problem Solving**
- **Time Management & Working Under Pressure**
- **Self-Motivated & Detail-Oriented**

Languages

- **Arabic**
- **English**