

Mostafa Asala

Data Analyst | Machine Learning Engineer

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Experienced Machine Learning Engineer skilled in AI development and data analysis with a strong record in building and deploying effective machine learning models. Consistent success in deploying machine learning models and conducting impactful data analysis, with additional experience teaching core technical concepts.

RELEVANT WORK EXPERIENCE

Data Analysis Instructor (Part-Time)

January 2025 – Present

MEC Academy

- Instruct students in core data analysis technologies including Python, SQL, Power BI, and Excel, preparing them for industry roles in data science and analytics.
- Designed and delivered interactive curriculum emphasizing data collection, transformation, and visualization aligned with real-world business applications.
- Guided learners in hands-on projects involving data modeling, statistical analysis, and dashboard creation to build practical skills and portfolio-ready work.
- Mentored students in best practices for data integrity, documentation, and communication of insights, reinforcing collaborative and analytical competencies.

Data Analyst and Machine Learning Engineer

June 2023 – Present

Arrow Electronics

- Developed and deployed machine learning models using Python and TensorFlow to optimize product recommendations and streamline inventory management, resulting in enhanced customer engagement and reduced stockouts.
- Reduced file handling time by **94%** (from **6** hours to **30** minutes) by automating repetitive tasks with Python and FastAPI, resulting in a **15%** increase in overall team productivity.
- Analyzed large datasets using SQL, Python libraries to extract insights and support web data acquisition, enhancing data quality and relevance for decision-making.
- Engineered classifiers with machine learning frameworks, Enhanced classification capacity by **15x**, processing up to **300K** PDF files daily compared to the prior **20K** capacity, improving operational efficiency.
- Partnered with cross-functional teams to embed machine learning solutions into business processes, facilitating operational changes and enabling data-driven decisions.
- Deployed machine learning models through **FastAPI**, enabling scalable, real-time access to model predictions for various business applications.

AI Developer (Part-Time)

August 2021 – October 2022

McVerse

- Deployed machine learning models through **FastAPI**, enabling scalable, real-time access to model predictions for various business applications.
- Drove operational improvements that resulted in a **20% faster deployment time** for business applications with embedded machine learning solutions
- Researched and applied advanced AI techniques such as reinforcement learning to boost model

accuracy and efficiency.

- Engineered a hierarchical pathfinding algorithm within a loop-based map, enhancing navigation accuracy and reducing processing time.

Teaching Assistant (Part-Time)

October 2021 – Present

Arab Academy of Science, Technology and Military Transport

- Collaborated on course material preparation, integrating industry-standard practices and tools to enrich the learning experience for computer science undergraduates.
- Enhanced course content with real-world applications, linking academic concepts to job-relevant skills to increase student readiness for tech roles.
- Achieved a **30% improvement** in student project outcomes by incorporating real-world applications into course material, boosting job readiness for tech roles
- Led lab sessions, guiding students on technical projects and reinforcing theoretical concepts through hands-on application and problem-solving support.
- Evaluated assignments and offered actionable feedback, focusing on skill improvement and concept reinforcement to support student growth.

EDUCATION

Banha University, Banha City

BS Computer Science — Electrical Engineering and Computer Science

2021

MSc computer science — Machine Learning

In Progress

SKILLS

Programming Languages: Python, R, Java, C, C#

Machine Learning: Scikit-learn, TensorFlow, Keras, PyTorch, Transformers

Data Analysis & BI: Power BI (data modeling, DAX), Excel (advanced formulas, pivot tables, power pivot), SQL, Plotly Dash, Streamlit, Seaborn, Matplotlib, Power Query

Tools: Jupyter Notebooks, Git, Docker, AWS, FastAPI

Databases: MySQL, PostgreSQL, MongoDB

Data Intelligence: Data Wrangling and Cleaning, Statistical Analysis, Trend Identification, Report Building, Dashboard Development, Data Documentation

Soft Skills: Collaboration and Teamwork, Adaptability, Communication, Attention to Detail, Analytical Thinking, Problem-Solving, Data Accuracy Focus

Projects

- **Web-Based Data Analytics Monitor**

- Developed a comprehensive web-based monitoring system for tracking and analyzing parts data across multiple modules
- Implemented real-time data visualization using Plotly.js, featuring interactive charts and dynamic dashboards
- Created an automated email reporting system with detailed statistics and status updates
- Built responsive data tables with advanced sorting, filtering, and export capabilities
- Integrated Power BI dashboards for trend analysis and reporting
- Designed a matrix-based validation system to track module statuses and performance metrics

Technologies Used:

- Frontend: HTML5, CSS3, JavaScript, Bootstrap 5
- Backend: Python (Flask)
- Data Visualization: Plotly.js, Power BI
- Database: SQL (with SQLAlchemy ORM)
- Version Control: Git

Impact:

- Improved data monitoring efficiency by automating status checks and reporting
- Enhanced decision-making through real-time analytics and visual data representation
- Streamlined parts validation process with automated status tracking and notifications

GitHub: <https://github.com/mostafaAsala/PDF-Classification>

- **Intelligent PDF Document Classifier**

Developed a machine learning model to automatically classify technical PDF documents (Datasheets, Manuals, Environmental Reports) using NLP and text classification techniques.

GitHub: <https://github.com/mostafaAsala/PDF-Classification>

- **Arabic Text Toxicity Detection Model**

Built an NLP-based machine learning model for detecting and classifying toxic comments in Arabic language text, addressing challenges in non-English language processing.

GitHub: github.com/mostafaAsala/Arabic-Toxicity-Classification

- **Interactive Data Visualization Dashboards**

Designed dynamic dashboards using Streamlit for interactive data exploration and visualization, enabling users to interactively analyze datasets.

GitHub: github.com/mostafaAsala/Streamlit-Charts-Tutorial

- **Exploratory Data Analysis (EDA) for Business Insights**

Conducted structured exploratory data analysis using Python to extract insights, visualize trends, and support data-driven decision-making.

GitHub: github.com/mostafaAsala/EDA-Tutorial

- **Web-Based Scraping Management App**

Tech Stack: Python, Flask, SQLAlchemy, HTML/CSS, Bootstrap

Built a web application to manage and monitor a web scraping system. It allowed file uploads of part numbers, checked their status against two Oracle-based tables (prty_feed and not_found), and provided insights into whether a part was "Found", "Not Found", or "Never Run".

Real-time part verification logic, Modular architecture for scalability, Upload + status dashboard feature

GitHub: <https://github.com/mostafaAsala/mistral>