# Abdelrhman Ahmed Ezzat

## Data Scientist

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## Summary

Data Scientist proficient in Python and Machine Learning, with strong expertise in Data Science workflows including EDA, predictive modeling, Model Optimization, and data storytelling. Experienced in end-to-end projects with real-world applications. Strong foundation in AI techniques, with hands-on deployment experience (FastAPI, Docker) and a track record of building real-world ML prototypes.

## Education

Menoufia University — B.Sc. Artificial Intelligence & Data Science. Oct 2022 – Expected Jul 2026

## Experience

### Digital Egypt Pioneers Initiative (DEPI) – Generative AI Trainee Jul 2025 – Present

- Contributed to a national initiative on advanced AI and Data Science technologies, focusing on Generative AI and Large Language Models (LLMs).
- Trained in Generative AI, LLMs, and prompt engineering techniques.
- Developed prototype Machine Learning applications leveraging LLMs and Generative AI models, with focus on scalability and deployment.
- Collaborated with a team of peers to design prompt engineering workflows.

## Skills

### Technical Skills:

- **Programming & Data Handling:** Python, SQL, PostgreSQL, NumPy, Pandas, OOP.
- **Machine Learning:** Scikit-learn, Random Forest, XGBoost, SVM, Decision Trees, Logistic Regression, Feature Engineering, Feature Selection, Model Evaluation, Hyperparameter Tuning.
- **Deep Learning:** PyTorch, NLP (Transformers, NLTK), Computer Vision (OpenCV), Reinforcement Learning.
- **Deployment & Cloud:** Docker, FastAPI, MLOps, AWS (S3, EC2), Azure (ML Studio), GCP (BigQuery).
- **Data Visualization & Storytelling:** Matplotlib, Seaborn, Power BI, Streamlit.
- **Big Data & Forecasting:** Hadoop, Spark, Prophet, ARIMA, SARIMA.

### Soft Skills:

- Problem-Solving, Communication Skills, Adaptability, Collaboration & Teamwork, Time Management, Critical Thinking, Leadership, Creativity.

## Projects

### Traffic Sign Detection and Classification (GTSRB) Dec 2023

- Collaborated with a team to optimize a CNN model, achieving **98.5% accuracy**.
- Optimized inference speed to **<50ms per image** for real-time use.

**Tools**: Python, TensorFlow, Keras, OpenCV.

**DQN Agent for 2048 Game (Reinforcement Learning)** May 2025

- Designed and implemented a Deep Q-Learning agent that consistently reached the 2048 tile in 85% of games.
- Trained on over **10,000 episodes**, achieving average score **15,000+ points**.

***Tools**: PyTorch, NumPy.*

**Vehicle Detection using Haar Cascades (OpenCV)** Dec 2023

- Implemented real-time vehicle detection with Haar cascades.
- Deployed working prototype with annotated bounding boxes.

***Tools**: Python, OpenCV.*

**Sports Popularity Analysis with Web Scraping** May 2025

- Processed **10,000+ data points** across 50+ sports categories using Google Trends API.
- Identified seasonal viewership trends and built predictive models.

***Tools**: Python, BeautifulSoup, Pandas.*

**Auto-correct System using NLP & Edit Distance** May 2025

- Developed a spelling correction system that achieved **92% accuracy** on benchmarks.
- Handled **50,000+ vocabulary words** and multi-word error corrections.

***Tools**: NLTK, spaCy, Edit Distance, N-gram models, Transformers.*

**House Prices EDA & Regression Modeling** Apr 2025

- Performed EDA and feature engineering as part of a Data Science pipeline.
- Built regression Machine Learning models with cross-validation, improving baseline RMSE by 15%.

***Tools**: Pandas, Seaborn, Scikit-learn.*

**Student Performance Prediction** Dec 2023

- Predicted student grades using regression (Linear, Ridge, Lasso).
- Visualized socio-demographic trends with Seaborn; improved $R^2$ vs baseline.

***Tools**: Scikit-learn.*