Mahmoud Abdelsayed Abu Rabeh

- ML & Data Analyst & AI Engineer

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Professional Summary

Hi, I'm a Machine Learning and Data Science enthusiast with hands-on experience in building intelligent models, analyzing complex datasets, and delivering actionable insights. I specialize in Machine Learning, Deep Learning, and Data Analysis using Python and tools like Pandas, Scikit-learn, TensorFlow, and Matplotlib. I enjoy solving real-world problems through data-driven solutions and constantly seek to learn and grow in the AI/ML field.

Education

- **Faculty of Computers and Information Science – Damanhour University**
- **Bachelor of Computer Science | 2023 – 2027**

Courses

Machine Learning For Data Analysis| at National Telecomunication Institute (NTI) | 2025

Descreption:

This course provides a practical introduction to machine learning techniques used in modern data analysis. It covers fundamental concepts and algorithms such as supervised and unsupervised learning, regression, classification, clustering, and model evaluation. Through hands-on projects and real-world datasets, students learn how to preprocess data, build predictive models, and derive meaningful insights.

Key Topics Covered:

- **Introduction to Machine Learning & AI**
- **Supervised vs Unsupervised Learning**
- **Regression & Classification Algorithms**
- **Decision Trees, KNN, Naive Bayes, and SVM**
- **Clustering (K-Means, Hierarchical)**
- **DL Models (CN, CNN)**
- **Model Evaluation (Accuracy, Confusion Matrix, Cross-Validation)**
- **Feature Selection & Data Preprocessing**
- **Using Scikit-learn, Pandas, Matplotlib, and Seaborn**
- **Using Jupyter Notebook for Data Analysis and Visualization**

Projects

Machine Learning Graduation Project (Video Game Sales)

Built predictive models to analyze and forecast global video game sales using machine learning techniques.

Key Highlights:

- Applied Linear Regression, Decision Trees, Random Forest, XGBoost, SVM, Logistic Regression, and KNN
- Predicted global sales and genre popularity based on platform, ratings, and more
- Performed data preprocessing and feature engineering
- Visualized trends and model results using Seaborn & Matplotlib

Tools: Python, Pandas, Scikit-learn, Seaborn, Matplotlib, Jupyter Notebook, GridSearchCV, Train/Test Split & Cross-Validation

Skills: Regression & classification, data preprocessing, feature engineering, data visualization

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House Price Prediction

Developed a predictive model to estimate house prices based on various features such as location, number of rooms, area, and amenities. The project involved comprehensive exploratory data analysis (EDA), feature engineering, and implementation of multiple regression algorithms to identify the most accurate model.

Key Highlights:

- Handled missing values, outliers, and categorical variables
- Applied correlation analysis to select significant features
- Built multiple regression models and compared performance
- Achieved high model accuracy and low RMSE
- Visualized model predictions vs actual values

Tools: Python, Pandas, Scikit-learn, Seaborn, Matplotlib, Jupyter Notebook, GridSearchCV, Train/Test Split & Cross-Validation

Skills: Regression Modeling & data preprocessing, feature engineering & Selection, data visualization, Model Evaluation, Hyperparameter Tuning

CNN Image Classifier (MNIST Digits)

A convolutional neural network (CNN) built to classify handwritten digits from the MNIST dataset. The model learns spatial features from grayscale images and achieves over 98% accuracy.

Key Highlights:

- Designed and implemented a Convolutional Neural Network (CNN) from scratch using Keras.
- Built a multi-layer CNN with convolutional, pooling, and fully connected layers
- Trained the model on the MNIST dataset to achieve over 98% accuracy on test data.
- Evaluated the model using accuracy, confusion matrix, and classification report.
- Visualized training progress with loss and accuracy plots over epochs.

Tools: Python, TensorFlow, Keras, NumPy, Matplotlib

Skills: Image preprocessing, CNN architecture, model training, evaluation, confusion

Technical Skills

- **Languages:** Python, SQL, C++, Java, Javascript
- **Deployment & Tools:** Git, Jupyter, Streamlit, Flask, VSCode
- **Data Analysis:** Pandas, NumPy, Matplotlib, Seaborn
- **Machine Learning:** Regression, Classification, SVM, KNN, Random Forest
- **Deep Learning:** Neural Networks, CNNs, TensorFlow, Keras