MUHAMMAD ADNAN

Data Scientist | Machine Learning Engineer

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PROFESSIONAL SUMMARY

Fresh Computer Science graduate with strong foundations in Data Science, Machine Learning, Deep Learning, SQL, and Power BI. Experienced in developing predictive models, computer vision applications, and data analytics projects using Python, Scikit-learn, TensorFlow, and OpenCV. Passionate about solving real-world problems through data-driven solutions and eager to contribute as a Data Scientist, Machine Learning Engineer, or Data Analyst.

TECHNICAL SKILLS

Programming & Libraries
Python • NumPy • Pandas
Matplotlib • Seaborn • Scikit-learn

Deep Learning Frameworks
TensorFlow • Keras • OpenCV
CNN • Transfer Learning

Database & BI
MySQL • Power BI
DAX • Data Modeling

Machine Learning
Regression • Classification
Clustering • Ensemble Methods

Core Competencies
Feature Engineering
Model Evaluation & Tuning
Statistical Analysis

Tools & IDEs
Jupyter Notebook • VS Code
Git • Power BI Desktop

EXPERIENCE

Business Associate — **2025 – 2026**
Scroll'n Ecom — Rawalpindi, Pakistan — *6 – 12 Months*

Founded and managed an e-commerce startup, overseeing end-to-end business operations including product sourcing, online store management, digital marketing, and customer relations. Gained hands-on entrepreneurial experience in building and scaling an online business.

PROJECTS

1. AI-Based Fertilizer Deficiency Monitoring Application (Final Year Project)

Model Used: Convolutional Neural Network (CNN) + Image Processing (OpenCV)
Platform: React Native (Mobile App) | Firebase (Authentication) | Django (Backend & Database)
Developed an AI-powered mobile application for real-time detection and monitoring of fertilizer deficiencies in crops. The system uses CNN-based image classification with OpenCV to analyze plant leaf images captured via smartphone camera, identifying nutrient deficiencies and recommending appropriate fertilizer treatments to support precision agriculture.

2. Age & Gender Prediction System

Model Used: Convolutional Neural Network (CNN) with Transfer Learning (VGG16/ResNet50)
Accuracy: Age Estimation MAE: ~5 years | Gender Classification: ~92% accuracy
Deep Learning model trained on facial datasets to predict age range and gender. Used data augmentation and batch normalization for improved generalization.

3. House Price Prediction
Model Used: Multiple Linear Regression, Random Forest Regressor, XGBoost
Accuracy: R^2 Score: ~0.89 | RMSE significantly reduced after feature engineering
Developed a regression model to predict real estate prices using features like location, size, and amenities. Applied feature engineering and hyperparameter tuning via GridSearchCV.

4. Medical Image Classification
Model Used: CNN (Custom Architecture) + Transfer Learning (InceptionV3)
Accuracy: ~94% classification accuracy on test dataset
Built a deep learning pipeline for classifying medical images (X-rays/MRI scans) into disease categories. Implemented class balancing, augmentation, and Grad-CAM for model interpretability.

5. Real-Time Face Detection
Model Used: Haar Cascade Classifier + MTCNN + OpenCV
Performance: Real-time detection at 25+ FPS with >95% detection precision
Implemented real-time face detection system using webcam feed. Integrated MTCNN for multi-face detection with landmark localization and bounding box visualization.

6. Traffic Surveillance Object Detection System
Model Used: YOLOv5 / YOLOv8 (You Only Look Once) + OpenCV
Accuracy: mAP@0.5: ~88% | Real-time inference on video streams
Built a YOLO-based object detection system for traffic monitoring, capable of detecting vehicles, pedestrians, and traffic violations in real-time video surveillance footage.

EDUCATION

B.Sc. Computer Science
Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi
CGPA: **3.46 / 4.0**
2022 – 2026
Completed

F.Sc. Pre-Engineering
Zubair Public School & College, Dera Ismail Khan
Grade: **A Grade**
Completed 2022

CERTIFICATIONS

Data Science Orientation — IBM
18 November 2025