Muhammad Umar Saleem

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Professional Summary

Electrical Engineering graduate with strong interest in Data Science, Machine Learning and Deep Learning. Hands-on experience in data preprocessing, feature engineering, visualization ,model building and development using Python, Pandas, NumPy, Seaborn, Scikit-learn and TensorFlow. Skilled in performing statistical analysis and drawing actionable insights from raw data. Eager to apply these skills to real-world projects and contribute to data-driven decision-making.

Education

Bachelor of Science in Electrical Engineering (Oct 2021 – Jun 2025)

Riphah International University, Faisalabad, Pakistan

CGPA approximate: 3.9

F.Sc. (Pre-Engineering) (2019 – 2021)

Students' Inn, Faisalabad, Pakistan | Grade: A+

Matriculation (Science) (2017 – 2019)

Govt. M. C. High School, Faisalabad, Pakistan | Grade: A+

Professional Experience

Intern (Aug 2024 – Sept 2024)

Agri Grid Station

- Visited various grid station areas to understand the operations of different sections.
- Gained theoretical knowledge of power distribution systems.
- Monitored maintenance procedures and safety measures in real time.

Projects

Fabric Defect Detection System Using Image Processing (Nov 2024 – May 2025)

- Developed a real-time fabric defect detection system using YOLOv8n, trained on a custom dataset that includes holes, stains, yarn shorts, broken needles, and thread issues.
- Collected and labeled raw fabric images using LabelImg in YOLO format; trained the model on custom data to detect multiple defect types accurately.
- Captured real-time images and videos using a smartphone camera to simulate live fabric inspection in industrial settings.
- Built a user-friendly web interface allowing users to upload or capture fabric images/videos for defect detection, visual feedback and also Create a CSV file that show the occurrence of each defect.

Churn Prediction using ANN

GitHub: Churn Prediction

- Developed a customer churn prediction model using an Artificial Neural Network (ANN) in TensorFlow/Keras, achieving ~82% accuracy on real-world data by handling class imbalance and optimizing model architecture.
- Implemented end-to-end Deep learning pipeline including data preprocessing, feature scaling, model training, and evaluation using Python, NumPy, Pandas, Scikit-learn and TensorFlow.

A/B Testing & Conversion Rate Optimization Analysis

GitHub: AB Testing

- Conducted A/B testing to compare webpage performance, analyzing conversion rates using statistical methods (Z-test, Wilson score) to determine the most effective design.
- Used Python (Pandas,Numpy,Seaborn and StatsModels) to clean data, visualize results, and validate findings—helping make data-driven decisions for better user engagement.

Predictive Maintenance of a Machines

GitHub: predictive-maintenance

- Developed a predictive maintenance model for a machines using AI4I Predictive Maintenance dataset; feature engineering to get new features like power, temperature difference and torque speed ratio.
- Tried multiple ML algorithms: logistic regression, random forest, decision tree, and XGBoost. Selected XGBoost classifier based on model performance tuned the best hyperparameters using GridSearchCV.

Product Demand Forecasting and Classification using Online Retail Dataset

GitHub: Product-Demand

- Cleaned and processed 500k+ transaction records; engineered new features like total price, purchase month, and demand level.
- Trained XGBoost classifier for demand prediction; evaluated model with classification report and visualized actual vs. predicted output.

Lounge Eligibility & Buying Behavior Prediction

GitHub: Buying-Behavior

- Created a scalable lookup table to estimate passenger lounge eligibility by grouping flights based on time of day and type of route (short-haul vs. long-haul).
- Analyzed customer data to predict buying behavior, identifying trends in service use, flight type, and destination.
- Applied cross-validation techniques to improve model accuracy and reduce overfitting.

Loan Approval Prediction Using Machine Learning

GitHub: Loan-approval

- Cleaned real-world loan dataset and performed feature engineering (e.g., income/month, loan amount in lakhs).
- Trained a Random Forest model and analyzed feature importance for credit-based decision-making.

House Price Prediction

GitHub: Real-Estate

- Performed end-to-end regression analysis on housing data to predict prices using features like area, bedrooms, bathrooms, and furnishing status.
- Conducted data cleaning and preprocessing, feature engineering, EDA, and model building.

Home Automation

- Designed a smart home automation system using ESP32, relay modules, and DHT11 sensors.
- Enabled real-time device control via the IoT Remote mobile app through Wi-Fi.

Power Factor Correction

- Developed a system using inductive loads and capacitors to improve energy efficiency.
- Achieved near-unity power factor and quantified reductions in energy losses.

Technical Skills

Languages & Libraries: Python, SQL, Pandas, NumPy, Matplotlib, Seaborn, Scikit-learn and TensorFlow

Tools & Platforms: Jupyter, PyCharm, Arduino IDE

Functional Areas: Data Cleaning and Preprocessing, Data Visualization, EDA, Machine Learning, Deep Learning and Statistical Analysis

Engineering: Power Systems, Machines, Electronics

Languages

- English – Fluent
- Urdu – Native
- Punjabi – Proficient

Certifications

- BRITISH AIRWAYS Data Science Job Simulation on Forage – July 2025 Built a machine learning model to predict customer lounge eligibility at Heathrow Terminal 3 based on travel behavior and ticket details. Analyzed and visualized customer purchase patterns to predict buying behavior using Python, Pandas, Matplotlib, and Scikit-learn.
- MATLAB On-Ramp – MathWorks (2024)
- Intro to Deep Learning – Coursera (2024)
- Python for Data Science, AI & Development – IBM/Coursera (2024)
- Intro to Machine Learning – Coursera (2024)

Hobbies & Interests

- Cricket
- Watching Movies & Anime