# Muhammad Zain Ul Abedeen

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Machine Learning & Python Developer experienced in building end-to-end ML pipelines, deep learning models, and deploying AI solutions for real-world problems.

## Skills

**Languages**: Python
**Machine Learning / Deep Learning**: Supervised Learning, Unsupervised Learning, Regression, Decision Trees, K-Means, CNN, Neural Networks
**ML Libraries**: Scikit-learn, TensorFlow, PyTorch, Keras, Pandas, NumPy, OpenCV, Streamlit, Matplotlib, Seaborn
**Data & Math**: Linear Algebra, Calculus, Probability, Statistics, Data Analysis, Feature Engineering, PCA
**AI / Automation**: Workflow Automation, Zapier, ChatGPT API Integration, Model Evaluation & Deployment

## Projects

**RevenueLens** | *Customer Revenue Analytics Platform* | Python, Streamlit, Pandas, Scikit-learn

- Built an end-to-end customer revenue analytics web app with data ingestion, preprocessing pipelines, and customer segmentation using Scikit-learn.
- Developed interactive Streamlit dashboards for real-time visualization of revenue trends and KPI monitoring.
- Automated report generation workflows, improving business reporting efficiency by **80%**.

**SheShield** | *Breast Health Risk Assessment Model* | Python, Scikit-learn, Pandas, Streamlit

- Developed supervised ML pipeline using Logistic Regression with feature engineering and preprocessing for early breast health risk prediction.
- Deployed interactive Streamlit interface generating interpretable risk reports, improving healthcare usability.
- Improved prediction accuracy by **12%** over baseline through systematic model evaluation and hyperparameter tuning.

**Deep Learning Image Classification (CNN)** | *CIFAR-10* | Python, TensorFlow, Keras, NumPy

- Designed and trained a Convolutional Neural Network (CNN) with a complete training, validation, and inference pipeline for multi-class image classification.
- Performed dataset preprocessing and model optimization experiments to maximize generalization.
- Achieved **76% accuracy** on CIFAR-10 test set, surpassing the baseline by **10%**.

**FIFA Player Clustering & Recommendation System** | Python, Pandas, K-Means, PCA

- Implemented K-Means clustering on **17K+ FIFA player records** with feature scaling and PCA for dimensionality reduction and cluster visualization.
- Built a similarity-based player recommendation engine for identifying statistically comparable players.
- Reduced player search time by **70%**, enabling rapid identification of similar player profiles.

## Education

**O-Levels & A-Levels** — Lahore, Pakistan
*Computer Science Track — Computer Science, Mathematics, Physics* — *Completed: April 2025*

## Certifications

**Machine Learning Specialization — DeepLearning.AI (Andrew Ng)** — Feb 2026
*Supervised & Unsupervised Learning, Neural Networks, Model Evaluation, Practical ML with Python*

**Mathematics for Machine Learning — Simplilearn** — Sep 2025
*Linear Algebra, Calculus, Probability, and Statistics foundations for ML*

**Introduction to Applied Data Science with Python — Simplilearn** — Sep 2025
*Data analysis, preprocessing, and applied data science workflows*

**Python Programming — GeeksforGeeks** — Aug 2025
*Core Python, data structures, problem solving, and algorithmic fundamentals*