Muhammad Umar

AI/ML Engineer — Deep Learning & Data Science

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Summary

AI/ML Engineer specializing in Deep Learning and Data Science. Proven ability to architect real-time inference systems, including a Medical Sign Language Interpreter using CNN–LSTM architectures. Experienced in building custom neural networks from scratch in NumPy to optimize core algorithms. Focused on deploying scalable, data-driven solutions for healthcare and predictive analytics.

Technical Skills

Languages & Web: Python, C++, SQL, HTML/CSS, GraphQL
Machine Learning & Deep Learning: TensorFlow, Scikit-learn, NumPy, Pandas, Matplotlib
Databases: PostgreSQL, MySQL
Deployment & Tools: Git/GitHub, Jupyter Notebook, Streamlit, OpenCV, MediaPipe

Projects

Signify — Medical Sign Language Interpreter (Final Year Project)

- Engineered a custom CRNN (Conv1D + LSTM) architecture processing 1,662 skeletal keypoints, achieving 91% accuracy across 20 medical triage classes.
- Constructed a hybrid dataset (ASL Citizen + custom webcam data) and applied Cosine Decay scheduling with Inverse Class Weighting to mitigate class imbalance.
- Implemented Hand-Gate activation logic and statistical debouncing filters to eliminate false-positive predictions during idle states.

Match Vision — Football Match Outcome Predictor

- Built a multiclass softmax classifier from scratch using NumPy, manually implementing forward and backward propagation.
- Achieved 85% test accuracy, matching Scikit-learn baselines while removing framework dependencies.

Review Scope — Movie Review Sentiment Platform

- Developed an end-to-end sentiment analysis pipeline scraping 5,000+ IMDB reviews via GraphQL and storing structured data in PostgreSQL.
- Benchmarked TF-IDF + Logistic Regression against VADER, achieving a 15% accuracy improvement.

Certifications

Machine Learning with Scikit-learn, PyTorch & Hugging Face Specialization — DeepLearning.AI
View Certificate

Education

Lahore Garrison University, Lahore, Pakistan
BS Computer Science — CGPA: 3.16
Expected Graduation: 2026