Hafiz Muhammad Awais

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Professional Profile

Data Scientist and Educator with hands-on experience in building and deploying AI solutions across healthcare, finance, and education domains. Skilled in transformer-based models (BERT, ViT, GPT), medical image analysis, and financial NLP applications. Currently teaching Programming for Finance and ML for Business labs at FAST NUCES. Delivered real-world projects, including sentiment analysis tools, medical image classifiers, and custom object detectors using YOLOv10. Adept at mentoring students, deploying ML pipelines, and applying deep learning for impactful, practical outcomes.

Technical Proficiencies

Languages: Python, R, SQL, MATLAB, C++
ML & DL Frameworks: Scikit-learn, TensorFlow, PyTorch, Hugging Face, Optuna
Data Analysis & Visualization: NumPy, Pandas, Matplotlib, Seaborn, Power BI
NLP & LLMs: BERT, GPT, DistilBERT, Transformers, Langchain, Chainlit
Other Tools: Git, Jupyter, Streamlit, PyTorch Lightning

Experience

Instructor *Jan 2024 – Present*
FAST National University of Computer and Emerging Sciences, Islamabad

- Teach labs for "Programming for Finance" and "Machine Learning for Business" using Python and Jupyter Notebooks.
- Developed project-based exercises aligned with financial datasets and real-world ML workflows.
- Conduct live coding, mentor students, and grade assessments for lab-based evaluations.

Freelance AI Engineer

- Designed and deployed deep learning models (ResNet, U-Net, Vision Transformers) for medical image classification.
- Improved diagnostic accuracy from 85% to 95% through transfer learning and hyperparameter tuning.
- Developed NLP-based tools including financial sentiment classifiers and a RAG-powered chatbot for localized QA.
- Delivered full ML pipelines with real-time inference using PyTorch, Hugging Face, and Langchain.

Education

MS in Data Science *Expected 2025*
National University of Computer and Emerging Sciences, Islamabad
Relevant Coursework: Machine Learning, Deep Learning, NLP, Computer Vision, Statistical Modeling

Bachelor's Degree *2018 – 2022*
Government College University, Lahore

Projects

1. **Sentiment Analysis of Amazon Alexa Reviews**
   Skills: NLP, Data Augmentation, Machine Learning, Python, scikit-learn
   - Investigated the impact of class imbalance and applied SMOTE + manual upsampling.
   - Achieved **98%** accuracy with **Random Forest** after model comparison and tuning.
2. **Intel Image Classification with Transfer Learning**
   Skills: Transfer Learning, PyTorch, ResNet50, Optuna
   - Tuned ResNet50 with Optuna; achieved optimal performance at LR = 0.00114.
   - Used ResNet50 for transfer learning to classify Intel image dataset.
3. **Object Detection with YOLOv10 on Custom Dataset**
   Skills: YOLOv10, Object Detection, Custom Dataset
   - Achieved **mAP50 of 0.995** and **mAP50-95 of 0.947** on the validation set.
   - Trained for 70 epochs with tuned hyperparameters on custom liquid-level dataset.
4. **Sentiment Analysis of Financial News Tweets Using DistilBERT**
   Skills: NLP, DL, Transfer Learning, Hugging Face
   - Fine-tuned DistilBERT on annotated tweets; classified sentiments into **Bullish**, **Bearish**, and **Neutral**.

- Achieved **87.43%** accuracy and **87.08%** F1-score; built GUI for real-time predictions.

5. **Language Summarization Tool Using BART**
   Skills: NLP, Abstractive Summarization, Transformers, PyTorch, Hugging Face
   - Built abstractive summarization tool with BART-large-cnn.
   - Fine-tuned the model to achieve a validation loss of **0.5879**.
6. **X-ray Image Classification Using ResNet-18**
   Skills: Deep Learning, Transfer Learning, PyTorch
   - Fine-tuned ResNet-18 to classify NORMAL vs PNEUMONIA chest X-rays.
   - Achieved **78%** test accuracy and **82%** F1-score.
7. **Autism Classification using Vision Transformer (ViT)**
   Skills: Deep Learning, PyTorch, Vision Transformer
   - Fine-tuned pre-trained ViT model using PyTorch Lightning.
   - Achieved **85.5%** accuracy and F1-score on binary classification task.
8. **RAG-based Chatbot for Pakistan Data**
   Skills: Langchain, Chainlit, PyTorch, Transformers, RAG
   - Designed a Retrieval-Augmented Generation chatbot trained on local knowledge (history, economy, geography).
   - Used Langchain + Chainlit with real-time embedding search for efficient QA.

Online Courses

Machine Learning Specialization, Stanford University (Coursera) *Jul. 2024*
Supervised Learning, Unsupervised Learning, Deep Learning

Data Science Professional Certificate, IBM (Coursera) *Aug. 2024*
Data Analysis, Visualization, Python, SQL, General AI Tools

Deep Learning with PyTorch, Coursera *Oct. 2024*
Developed deep learning models with PyTorch for image and sequence applications, including CNNs, RNNs, and LSTM networks.

Professional References

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