

Aimon Humayun

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ABOUT ME

AI and ML Engineer with a robust background in Electrical Engineering.

EDUCATION AND TRAINING

OCT 2019 – MAY 2023 Lahore, Pakistan
B.SC ELECTRICAL ENGINEERING University of Engineering and Technology, Lahore

Developed an app that generates sign language poses in response to user input in the form of text or speech. Employed **MediaPipe** for video and image processing and utilized neural machine translation techniques to accurately predict sign language poses corresponding to Urdu sentences, enabling effective communication with hearing-impaired individuals

Final grade 3.50 | **Thesis** Speech to Pakistan Sign Language

WORK EXPERIENCE

JAN 2024 – CURRENT Lahore, Pakistan
DATA SCIENTIST BIG DATA ANALYTICS

- Currently **leading** a team responsible for Internal Charts, a web-based platform that monitors, detects, and resolves data issues to enhance accuracy and reliability, utilizing **Django**, **Django REST Framework**, and **SQLAlchemy** for API development and data management.
- Trained** and mentored 3 new hires for the ASE role, enhancing team productivity and cohesion.
- Developed and optimized scripts for data cleaning, preprocessing, manipulation, and transformation using libraries such as **Pandas**, ensuring high data quality for analysis.
- Analyzed extensive datasets to identify trends, and irregularities, providing actionable insights for decision-making.
- Implemented end-to-end framework for **imaging classification using explainable AI** techniques, achieving accuracies of 87% to 96% across various computer vision models via transfer learning and designed XAI evaluation metrics.
- Single-handedly led the XAI project independently without prior expertise in **XAI** or guidance, demonstrating a willingness to take on challenges and learn new skills autonomously.
- Developed a **BERT-based classification model** to predict user profiles from tweets, achieving 90% accuracy.
- Built a **RAG** system for a customer support chatbot, making responses 40% more relevant and accurate. This system combined document searches with AI-generated replies, leading to happier users and faster response times.

JUN 2023 – DEC 2023 Lahore, Pakistan
ASSOCIATE SOFTWARE ENGINEER BIG DATA ANALYTICS

- Independently designed and built over 15 **web scrapers**, improving performance by over 200% through strategic database optimizations and troubleshooting issues like website blocks and API problems.
- Developed automated **Selenium** scripts to efficiently scrape and collect data, improving data accuracy and speed.
- Collaborated with cross-functional teams to develop **Django rest framework** backend infrastructure for a data-intensive analytics website, increasing application functionality by 60%.
- Completely developed the backend for the Sub-National Governance (SNG) website using **DRF**, ensuring robust functionality and a successful project launch.

JUN 2022 – AUG 2022 Lahore, Pakistan
MACHINE LEARNING INTERN PTCL

- Applied advanced image processing with **OpenCV** and nanonets to extract data from poorly scanned forms.
- Implemented preprocessing steps, such as noise reduction and image enhancement, to optimize input images for better recognition results.
- Attained 70%+ accuracy despite poor image quality, complex text formatting (including Urdu handwritten text overprinted), and low-lighting image conditions.

DIGITAL SKILLS

Machine learning (Tensorflow, Keras, Pytorch, Scikit-Learn, OpenCV) | NLP: NLTK, spaCy, Gensim, HuggingFace, Langchain, LlamaIndex, Transformers | Databases: MySQL, PostgreSQL, Vector Database (Faiss, Qdrant, Chromadb) | Web Frameworks: Django, Flask, FastAPI | Linux | Git and GitHub | Docker | SQL | Postman | Programming Languages: Python, C++

PROJECTS

Classified crops images utilizing VGG-16 model with high accuracy.

Implemented a content-based movies recommender system on TMDB 5000 Movie Dataset.

Built and evaluated neural network models using Keras to predict concrete strength, employing normalization, increasing epochs, and adding hidden layers to improve the model's accuracy.

Utilized multiple clustering machine learning algorithms, including KMeans, DBSCAN, and Agglomerative Hierarchical Algorithm, to analyze, group data and interpret results in various projects.

BERT-Based Tweet Classification: Leveraging BERT to Develop a High-Accuracy Model for Predicting User Identities from Social Media Tweets

Created a multi-agent system that includes a web search agent using DuckDuckGo, a retriever agent with two tools for different knowledge bases, and an image generation agent with a prompt generator. The central orchestrator agent can execute code, making the system efficient and versatile.

CERTIFICATIONS

APR 2023

Introduction to Deep Learning & Neural Networks with Keras

Link <https://www.coursera.org/account/accomplishments/verify/2UJNPFNHQEDS>

NOV 2022

Machine Learning with Python

Link <https://www.coursera.org/account/accomplishments/verify/GNP4GL9FJ236>

Supervised Machine Learning: Regression and Classification

Link <https://www.coursera.org/account/accomplishments/verify/KVEPJGTEFKQR>