**Muhammad Hasnain Pirzada**

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**MACHINE LEARNING ENGINEER**

I am a passionate and results-driven Machine Learning Engineer with a solid foundation in Probability, Statistics, Linear Algebra, Numerical Analysis, and Python programming. I specialize in building highly accurate machine learning models and extracting valuable insights from complex data sets. My expertise includes developing models for Natural Language Processing (NLP), computer vision, and image processing tasks. I am eager to apply my skills in AI, NLP, and machine learning to solve real-world problems and contribute to innovative solutions that impact society.

**EDUCATION**

***UNIVERSITY OF ENGINEERING & TECHNOLOGY, MARDAN (UET-M) Mardan, Pakistan.***

Bachelor of Engineering (BE) Computer Software Engineering. OCT 2021--JUN 2025

(CGPA: 3.72/4.0) **PEC Level-II** Recognized program + **OBE degree** (PLO’s Score: 90%)

***Peshawar Model Degree Collage Mardan Mardan, Pakistan.***

F.sc Pre-Computer Science. Aug 2019--Aug 2021

(Ob. Marks: 1048/1100 - A+) from **BISE Mardan.**

**WORK EXPERIENCE**

**Internship in Artificial Intelligence and NLP**

Certificate Validation (ISE/AINLP/231025/05) [Validation Link](https://github.com/engrhasnain/Intership_Certificate/blob/main/Muhammad%20Hasnain%20Pirzada.pdf)

* Development of an Intelligent Conversational Agent Creating a that responds to User Queries.
* Enhanced Question Answering using a fine-tune BERT Model.
* Real-Time Language Translation AI-powered.
* Drug Repurposing: Leveraging AI to Discover New Therapeutic Application for Existing Drug.

**TECHNICAL SKILLS**

* Proficient programmer in multiple languages and environments including Python, C, C++, R, and SQL.
* Better understanding of Data Structures and Algorithm Analysis.
* Have a strong Mathematical Background in Linear Algebra, Probability & Statistic, Numerical Analysis and Calculus.
* Proficient in using packages like Tensorflow, Keras, NLTK, Spacy, Sk-Learn, Numpy, Pandas, Regex, OpenCV and Transformer etc.
* Having a better understanding of LLM like GPT, hugging face model etc.
* Having the skill of AI Chabot’s development using LangChain, Lama-index and vector databases like, Chromadb, FAISS etc.
* Control Version Git and GitHub.
* AWS Cloud Computing.

**PROJECTS**

**Image Super Resolution using Vision Transformer (Final Year Project)**

* My Final Year Project in BSc. Computer Software Engineering utilized the latest Transformer Architecture (LMLT: Low to High Multi Level Transformer) for Image Super Resolution (Using Brain MRI Images).
* Dataset Consist of images of 1596 gray scale images of 256x256 sizes.
* Achieved better values of PSNR and SSIM as compared to other previous model SRCNN (Super Resolution CNN), SRGAN, SWINIR (Shifted Windows Transformer for Images Super Resolution).
* The goal of the project is to convert low resolution images (128x128) to high resolution images (256x256) 2x super resolution.

**Airena (E-sport Live Streaming Platform with in-stream Shopping Facilities)**

* Developed a live game streaming web platform using React and Firebase, enabling influencers to broadcast gameplay in real-time with integrated live chat and user authentication.
* Implemented real-time messaging using Firebase Firestore, allowing seamless interaction between viewers and streamers during live sessions.
* Integrated in-stream shopping and product recommendations, enabling viewers to purchase featured items directly from the live stream interface.
* Built a machine learning-based recommendation system using FastAPI and TF-IDF techniques, integrated with Shopify’s GraphQL API to suggest personalized products.
* Ensured responsive design and cross-device compatibility, leveraging PostCSS and custom React components for a dynamic and scalable user experience.

**Website Classification ---- Classification Problem**

* Worked on a client project involving data gathering from homepage images of educational, job, and e commerce websites to extract relevant content.
* Applied OCR (Optical Character Recognition) techniques to extract text from images, ensuring accurate text retrieval from various types of visual content.
* Preprocessed the extracted text using Tokenization and TF-IDF Vectorization, transforming the data into a format suitable for machine learning analysis.
* Built and trained an SVM (Support Vector Machine) model with a linear kernel to classify the preprocessed text data into distinct categories (educational, job, and e-commerce).
* Achieved an accuracy of 90% with the SVM model, demonstrating the system's ability to effectively classify and interpret diverse content from image-based data.

**HONORS & AWARDS**

* Receiving Top 5 students Scholarship from the university.
* Received the Certification for maintaining outstanding performance in academics (Dean’s List).

**CERTIFICATIONS**

* **Machine Learning Specialization** 🡪 [Stanford University (Three Courses)](https://coursera.org/share/b239e7d486dde188fe1538d84d408018).
* **Applied Data Science with Python** 🡪 [University of Michigan (Five Courses).](https://www.coursera.org/account/accomplishments/specialization/XR75AX8YYGXY?utm_source=link&utm_medium=certificate&utm_content=cert_image&utm_campaign=sharing_cta&utm_product=s12n)
* **Neural Networks and Deep Learning** 🡪 [DeepLearnig.ai (one Course)](https://www.coursera.org/account/accomplishments/verify/JMYETU5CSCPP?utm_source=link&utm_medium=certificate&utm_content=cert_image&utm_campaign=sharing_cta&utm_product=course).
* **NLP with classification and Vector Space** 🡪 [DeepLearning.ai (one Course).](https://www.coursera.org/account/accomplishments/verify/WGX75SN6EAB3?utm_source=link&utm_medium=certificate&utm_content=cert_image&utm_campaign=sharing_cta&utm_product=course)
* **Complete Gen AI with Lang-Chain and Hugging Face** 🡪 [Udemy.](http://www.udemy.com)

**SOFT & LINGUISTICS SKILLS**

* Communication and Presentation Skills.
* Problem solving Skills.
* Proficient in speaking, reading, and writing the foreign language English.
* Proficient in speaking, reading, and writing the national language Urdu.
* Proficient in speaking, reading, and writing the native language Pushto.