Abdullah Zunorain

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EDUCATION

University of Engineering and Technology Peshawar Sep 2019 – Oct 2023

BS Electrical Engineering (Communication) – **CGPA 3.21/4.0**

WorldQuant University Nov 2023 – Jan 2024

Applied Data Science Lab Certificate Link

WORK EXPERIENCE

PakAngels - ***Gen-AI Trainee*** Oct 2024 – Feb 2025

- Built interactive **Streamlit applications** for text analysis, image processing, and weather-based recommendations using AI models.
- Designed various Chatbots using **LLaMA models** for educational and interactive purposes with advanced UI.

atomcamp - ***Data Science & AI Trainee*** Jan 2024 – Sep 2024

- Conducted data handling, cleaning, and wrangling using tools like **Excel**, **Power BI**, **SQL**, and **Python**, enabling actionable insights from complex datasets.
- Worked on projects such as **Pea Plant Disease Detection** using **CNN** and **VGG16**, **Cardiac Disease Classification**, and **Brain Tumor Detection** with neural networks.
- Developed models for text classification and sentiment analysis as part of **NLP** projects.
- Utilized **LLMs** like **LLaMA** and **Bard** via **Groq API** for innovative applications.
- Built various chatbot solutions, including **Voice-to-Voice Chatbots**, **Text-to-Voice Chatbots**, and apps like the **Weather-Based Outfit Suggestion App** using the LLaMA model.
- Implemented **Docker containers**, deployed applications via **Streamlit** and **Gradio**, and leveraged **Hugging Face** and **GitHub** for project management and deployment.

Center for Intelligent Systems and Network Research (CISNR) – ***AI Internee*** Jul 2023 – Sep 2023

- Collaborated on a US-based project under the guidance of a senior team lead. Responsibilities included image annotation using **LabelImg** and **labelMe**. Additionally, contributed to a project focused on plant disease detection, utilizing **YOLOv5 and YOLOv8**.

PROJECTS

Weather-Based Outfit Suggestion App (Github Repository**)** **app**

Developed as part of the PakAngels GenAI Hackathon

- **Role**: Team Lead & App Developer
- Designed and developed a Python-based app to provide personalized outfit recommendations based on location-specific weather data, time of day, and user preferences.
- Integrated features such as fabric choice, activity-based recommendations, and style customization to enhance user experience.
- Collaborated with a team of four to deliver the project within a tight deadline, contributing to app logic and front-end functionality.
- Tools & Technologies: Python, OpenWeather API, Streamlit, and GitHub.

Movies Recommendation App (Github Repository) app

- Developed a **Retrieval-Augmented Generation (RAG)**-based chatbot that provides personalized movie recommendations.
- Utilized **pre-trained models** and **NLP techniques** to fetch and suggest movies based on user preferences and queries.
- Implemented a **Colab-based pipeline** to analyze and preprocess movie data from custom datasets (**Hydra-Movie-Scrape.csv**) for better recommendation quality.
- Ensured a user-friendly **web-based interface** using **Streamlit**, making the recommendation process interactive and efficient.

- Deployed the app on Streamlit Community Cloud for easy accessibility and seamless performance.

Voice-to-Voice Chatbot (*GitHub Repository*) *app*

- Designed and implemented an advanced chatbot capable of **voice-to-voice communication**, enabling seamless user interaction through speech.
- Integrated **speech recognition and synthesis** technologies for real-time transcription and response generation.
- Developed a robust backend using **Hugging Face models** for natural language processing and dynamic conversation handling.
- Enhanced the user experience with a clean and intuitive interface using **Streamlit**.

Agricultural AI Projects **(Pea Plant Quality Assessment Using Custom CNN)** GitHub Repository

- Designed a **Convolutional Neural Network (CNN)** model to classify the quality of pea plants, enabling early detection of diseases and growth issues.
- Customized CNN featuring convolutional, pooling, and fully connected layers for accurate image classification.
- Compared the performance of advanced architectures like **VGG16**, **YOLOv8**, and traditional models such as **Naive Bayes** and **Random Forest**.
- Leveraged data augmentation, **Adam optimizer**, and categorical cross-entropy for model training, achieving high accuracy across testing datasets.
- Developed insights into plant health by analyzing classification metrics, confusion matrices, and performance reports.

Professional Chatbot Using LLaMA Model (GitHub Repository**)** app

- Developed a professional and interactive chatbot leveraging the **LLaMA model API**, designed for coherent and contextually relevant response generation.
- **Streamlit-based UI**: Real-time, responsive interface ensuring smooth interactions across different devices.
- **Enhanced User Experience**: Fixed input box and send button at the bottom for uninterrupted user queries while the chat history dynamically scrolls.
- Integrated custom **CSS** and **images** for an aesthetically modern and professional interface.
- Integrated **LLaMA model** via **Hugging Face API** for efficient natural language processing.
- Utilized **Python-based modules** including **Streamlit** and **Requests** for a scalable and maintainable codebase.
- Enabled smooth **customization** through **HTML** and **CSS** for a personalized UI experience.

Predicting Heart Disease Using Machine Learning (Github Repository**)**

- Built a machine learning model to predict heart disease based on health data. Implemented algorithms like K-Nearest Neighbors, Decision Trees, and Random Forest. Evaluated model performance using accuracy, precision, and recall. The project aims to assist in early detection of heart disease.

Brain Tumor Detection Desktop Application (Github Repository)

- Developed a GUI-based brain tumor detection system using Python and Tkinter.
- Utilized pre-trained deep learning models (e.g., CNNs) for tumor detection from MRI images.
- Implemented real-time tumor visualization and region highlighting on MRI scans.
- Integrated OpenCV and Pillow for image processing and manipulation.
- Provided features for uploading MRI images, detecting tumors, and visualizing tumor regions.
- Developed a user-friendly interface for easy interaction and result display.

SKILLS

- **Programming Languages:** Python, C++/C, Embedded C, SQL, MATLAB, Bash/Shell Scripting

- **Tools/Software:** Jupyter Notebook, MySQL, PostgreSQL, Visual Studio Code, Keil uVision5, STM32CubeMX, 8051 Microcontroller, STM32 Microcontroller, WireShark, Cisco Packet Tracer, LabelIMG, LabelMe, RoboFlow, OpenCV, Scikit-learn, TensorFlow, PyTorch, Keras, Streamlit, Multisim, MS Word, Excel, PowerPoint, Git/GitHub, Hercules, Logic analyzer(Saleae Logic), Docker Containers, Arduino IDE

- **Technical Skills:** Data Analysis, Data Annotation, Data Labeling, EDA (Exploratory Data Analysis), Machine Learning, Computer Vision, Natural Language Processing (NLP), Deep Learning, IoT Development, Embedded Systems, RESTful APIs Integration.