HASNAIN MUAVIA

FULL STACK AI ENGINEER

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PROFILE SUMMARY

I am a Full Stack AI Engineer with expertise in Machine Learning, Deep Learning, and AI application development. I have developed and deployed a range of projects, including cancer prediction models, NLP applications, face recognition systems, and predictive analytics. My skills include data preprocessing, model fine-tuning, and building end-to-end AI solutions using frameworks like Django, Flask, and Selenium. Passionate about Generative AI and advanced deep learning, I continuously seek innovative ways to leverage AI for real-world applications.

EXPERIENCE

Gen - AI engineer - Hybrid **22 Jan - 2025 - Present**

Autometa limited

- Develop AI-powered automation solutions, including intelligent agents for task automation.
- Design and implement autonomous AI agents to optimize workflows and decision-making.
- Integrate AI-driven automation into business processes for increased efficiency and scalability.

Generative - AI course Trainer **11 Jan - 2025 - Present**

Arfa Kareem Tech Incubator (ASTP)

- Teach Full-Stack Web Application development using Generative AI, automation, and integration.
- Guide students in Deep Learning, Machine Learning, and NLP with hands-on projects.
- Provide industry-focused AI training to enhance real-world application skills.

Generative - AI course Trainer **9 Feb - 2025 - Present**

Arfa Kareem Tech Incubator (DHA)

- Conduct two courses on Generative AI, automation, and Full-Stack Web App development.
- Train students in Deep Learning, Machine Learning, and NLP with practical implementation.
- Focus on real-world AI applications and industry use cases for hands-on learning.

Full Stack AI Engineer with Django experience **2024 - Present**

Freelance - Upwork

- Developed RAG systems and chatbots using Python and Django with fine-tunable capabilities.
- Designed dynamic interfaces with CSS, Bootstrap, and JavaScript for seamless user experience.

EDUCATION

Bachelor in Software Engineer / Current **2021 - 2025**

University of Management and Technology (UMT) - Lahore - Pakistan

Currently enrolled in 8th semester with **CGPA 3.77**

F. SC (Pre - engineering) - Intermediate **2019- 2021**

Superior College Lahore - Pakistan

A+ Grade over all

SKILLS

TECHNICAL SKILLS : C++ | Python | Numpy | Pandas | Seaborn | Matplotlib | Image Augmentation | SQL - MYSQL | NLP | Flask | Django | OpenCV | Selenium | HTML | CSS | Javascript | Bootstrap | Gradio | Langchain | Ollama | llama-index | Streamlit | Machine Learning | Data science | C# GUI | OOP | Data Structure | OpenAI | Groq | Autogen

ANALYTICAL SKILLS : Data wrangling | Data Preparation | Visualization | EDA

TOOLS : VS Code | Pycharm | Microsoft Visual Studio | Figma | Canva | Visily | Postman | Git | GitHub | Word | PowerPoint | Excel | Photoshop | Linux Windsurf | Cursor | Claude | ChatGPT | JIRA | Slack | Perplexity | Deepseek | HuggingFace | Colab | Pycharm | VS Code

Deployement : Vercel | Heroku

INDUSTRY PROJECTS

Jira - Issue creator tool

- Allow users to input complete project priorities, enabling an AI agent to identify and extract individual tasks.
- Automatically generate task titles using an AI agent, with options for users to edit or regenerate before proceeding.
- Generate task summaries via a third AI agent, allowing edits and re-generation before finalizing and creating JIRA issues through function calling.

Story Crafer - comic book creator

- Users provide a story statement and mood (e.g., horror, fantasy), and an AI agent identifies key characters and plot elements.
- Generate comic book-style images based on the story context, ensuring consistency in character design and scene progression.
- Allow users to refine, edit, or regenerate story elements and images before finalizing the comic book.

Accounting Bot - RAG System

- Develop an RAG-based system where users can query financial data, retrieving relevant insights from stored documents.
- Allow admins to upload documents, monitor user queries, and review both user and AI responses.
- Provide a parameter-tuning dashboard for optimizing AI performance and managing monetization analytics.

PERSONAL PROJECTS

Bone Fracture Prediction - Deep Learning

- Utilized a real-time hospital dataset containing images of bone fractures across 8 different classes, applying image augmentation techniques for an unbiased dataset.
- Implemented multiple deep learning models, including VGG-16, VGG-19, ResNet50v2, and DenseNet, to predict bone fractures with improved accuracy.

Lung and Colon Cancer Prediction using LCD25000 Dataset

- Trained and fine-tuned pretrained models (VGG-16, VGG-19, MobileNet, DenseNet121) on the LCD25000 dataset.
- Achieved higher accuracy with VGG-16, demonstrating the effectiveness of fine-tuning techniques for medical image analysis.

IMDB Movies Sentiment Analysis using Gradio API

- Scraped movie reviews from the IMDb website using Selenium and preprocessed the data with the NLTK library.
- Displayed sentiment analysis results on a Gradio API interface using the VADER algorithm, allowing users to search by URL or title and visualize results with Matplotlib.

Online Attendance System with Face Recognition

- Created a student attendance system using OpenCV for face recognition.
- Trained a model on a dataset of student faces, enabling automatic attendance updates upon detecting a student's face with the camera.

Gastrointestinal Prediction - Deep Learning

- Used a hospital dataset with 11 classes (e.g., polyps, normal Z line, impacted stool) for gastrointestinal condition prediction.
- Applied image augmentation techniques and trained various deep learning models (VGG-16, VGG-19, DenseNet121) to improve prediction accuracy.

RAG System With Llama-index

- Developed a robust Retrieval-Augmented Generation (RAG) system using Llama3.1:8B local model with runtime document embedding and efficient storage management.
- Engineered a multi-chat platform with real-time document uploads, embedding reuse, and local storage of chat history for seamless user experience.
- Designed and deployed an intuitive Streamlit interface for streamlined interaction with advanced NLP features, ensuring data persistence and easy access.

Product Price Comparison using Django and Selenium

- Built a Django application to scrape and compare product prices from three different online stores.
- Enabled users to view and compare prices, with direct links to the stores for easy access and purchase decisions.

MNIST Handwritten Digit Prediction

- Trained a neural network model to recognize handwritten digits from the MNIST dataset.
- Achieved an accuracy of 90.2% on the test set, demonstrating effective model training and optimization.

Image Augmentation Dataset

- Created a dataset with 1000 images, each containing three different breeds of dogs.
- Each breed was represented by only three original pictures, emphasizing the use of augmentation techniques to expand the dataset.

Automated Selenium Script for Picture Downloads

- Developed a Selenium-based automation script to download pictures from the Unsplash website.
- Incorporated comprehensive Selenium concepts, such as web scraping, handling dynamic content, and downloading images.

Election Prediction - 2024

- Scraped election-related data from multiple websites and performed Exploratory Data Analysis (EDA) to understand patterns and trends.
- Prepared a robust dataset, trained a machine learning model, and made predictions about election outcomes.

Dynamic Portfolio with Django Backend

- Developed a dynamic and fully responsive portfolio using Django backend, integrating HTML, CSS, JavaScript, and Bootstrap.
- Added functionalities for email configuration and password reset authentication to enhance user experience and security.
- Implemented a minimal inline admin panel for efficient content management and updates, along with a runtime color-changing option for enhanced user customization.

Netflix Clone Project

- Developed a Netflix clone front-end project using HTML, CSS, JavaScript, and Bootstrap.
- Ensured the project is fully responsive, providing an optimal viewing experience across different devices.
- Included panel navigation for easy and intuitive user interaction.

PON-P3 Django Project for University of LUND - China

- ID Input Validation: Developed a Django project where IDs must be entered in a specific format for batch retrieval.
- File Format Enforcement: Implemented strict format validation for CSV and Excel file uploads to ensure compatibility and correctness.
- Email Notification: Enabled sending CSV output files, containing retrieved entries based on the formatted IDs, to the user's email address.

PON-GOF Django Project for University of LUND - China

- Input Validation and Database Lookup: Implemented functionality to check user input (both from individual fields and CSV files) against a database, saving matching entries in a DataFrame.
- Model Prediction for Unmatched Entries: Applied bootstrapping techniques and utilized 200 models to predict outcomes for entries not found in the database, saving these predictions and updating the database with new entries.
- CSV Output and Email Notification: Generated a CSV file containing both found and not-found entries, and sent this CSV file as an email attachment to the user.

VisionAID Hackathon Project

- Developed an AI-powered medical image analysis tool where users can upload medical images (X-rays, prescriptions, etc.).
- Integrated IBM Watson and Aria API for image analysis, followed by insights delivery through Text-to-Speech (TTS) and Speech-to-Text (STT) for hands-free interaction.
- Enabled voice-based user interaction for real-time medical insights and feedback.
- vision-aid-aria.vercel.app

LLAMAENG - AI Data Preprocessing & Labeling Tool

- Created an AI tool for data preprocessing and data labeling.
- Used Llama models with Groq API for data labeling and implemented features such as stopword removal and contextual word correction based on sentence context.
- Developed a unique context-aware feature to automatically correct words in a sentence based on surrounding context.
- llamaeng.vercel.app

Accounting - RAG Bot using Llama Index

- Developed a Retrieval-Augmented Generation (RAG) bot for accounting queries using Llama3.2 and Groq API.
- Designed an interface similar to GPT where users can ask questions, create, delete, and rename chat sessions, with chat history saved to the database.
- Implemented an admin upload page for uploading RAG documents to be processed by the bot.
- Created a parameters page for admin users to fine-tune the RAG system, analyze user queries, and review bot responses.

Flask CRUD API

- Created a CRUD API using the Flask framework, implementing all CRUD operations (Create, Read, Update, Delete).
- Utilized the MVC (Model-View-Controller) architecture to ensure a clean and organized codebase for efficient data transfer between the server and the database.

LearnOCR - AI textual and Vision Tool

- Integrate Groq API to allow users to choose different models for text-based queries, including coding and general knowledge.
- Implement Bravo Search for efficient information retrieval, enhancing response accuracy and relevance.
- Utilize Tesseract for extracting insights from images, enabling vision-based processing with multiple model options.

EDUAI - Learning system

- **Lecture AI:** Transcribe YouTube videos, extract key insights, and enable interactive Q&A with AI.
- **Book Chat:** Engage with books by searching, summarizing, and discussing content using AI.
- **OCR Tool:** Extract text from images and documents for seamless processing and analysis.
- **Question Paper Generator:** Automatically create question papers based on educational material.