Faizan Ahmad

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SUMMARY

A passionate Technology Enthusiast with a specialized focus on machine learning pipelining and Generative AI. Proficient in machine learning engineering, I excel in software development, debugging, testing, maintenance, and support. My experience predominantly lies in building deep learning models within the computer vision domain, complemented by a strong proficiency in MLOps. This includes developing robust machine learning pipelines at scale, encompassing data pre-processing, streaming, and containerization. I have a proven track record in leveraging advanced RAG systems, enhancing capabilities in natural language processing and generative tasks. My analytical acumen and problem-solving skills enable me to deliver innovative solutions in complex technical environments.

EXPERIENCE

Machine Learning Engineer (On-Site) ***September 2021 - Present***

LEARNN Pvt Ltd., Peshawar Pakistan

ReasonAI: Advanced Custom Chatbot

September 2023 – January 2024

- Created 'ReasonAI', an interactive chatbot for user-uploaded document analysis (PDF, Word, CSV).
- Employed the LangChain framework for enhanced natural language retrieval from diverse text data.
- Implemented storage of document embeddings and user chats in Qdrant vector database for efficient data handling and retrieval.

LawGPT: Chatbot for Lawyers and Judges

August 2023 - December 2023

- Developed 'LawGPT', a specialized chatbot providing access to Pakistan courts' judgments, enabling users to interactively query high court and supreme court cases and chat with it.
- Constructed a sophisticated pipeline using Qdrant vector database for efficient storage and retrieval of case embeddings.
- Designed an advanced retrieval methods to match user queries with accurate and relevant court case data.
- Created a FastAPI interface, facilitating seamless integration of the chatbot with user interfaces for enhanced accessibility and user experience.

PROJECTS

Vehicle and its license plate detection in video
March 2022 - June 2023

- Developed a machine learning model using YoloV3 and YoloV4, trained on the COCO dataset, for vehicle and license plate detection in videos.
- Enhanced the model with MobileNetV2 and transfer learning techniques for improved accuracy and efficiency.
- Achieved high detection accuracy, approximately 92% for vehicles and 90% for license plates.

Nudity Detection (light-weight mobile)
September 2021 - April 2022

- Developed a machine learning model using MobileNetV3 to classify images as Nude or Safe, optimized for mobile deployment.
- Trained on a dataset of over 700,000 images using Keras/TensorFlow, achieving reliable accuracy for mobile use.
- Enhanced performance with image data augmentation, early stopping, and regularization techniques.

TECHNICAL SKILLS

Python: Langchain, Llama-Index, Tensorflow, Scikit-learn, Pytorch, Numpy, Pandas, matplotlib, OpenCV, EasyOCR., Selenium, BeautifulSoup4, FastAPI.
VectorDatabase: MongoDB, Qdrant, Chroma, OpenSearch, Faiss.
Other: CI/CD Pipelines, Docker Containerization.

INVOLVEMENT

Build Transformers Encoder from Scratch
October 2023

- Collaborated with a colleague to design a Transformer Encoder, focusing on NLP tasks using Python and PyTorch.
- Contributed to implementing attention mechanisms and position encoding, enhancing the model's efficiency and accuracy in language processing tasks.

EDUCATION

Bachelors in Computer Science
Agriculture university Peshawar • 2022

INDUSTRY KNOWLEDGE:

- **Classical Machine Learning:**
  Vectorization, Linear regression, Logistic regression, Statistical model evaluation, gradient descent, Pandas for Data engineering and filtering

- **GenerativeAI:**
  GPT3.5, GPT4, GPT4Turbo, Mistral 7B-instruct-v0.1, Mixtral 8x7B-instruct, Llama2, BERT, Langchain, Llama-index, Vector-Databases, Advanced RAG System, Transformers, Evaluation of document retrievals, Data-pipeline for VectorDB, FineTuning LLM's, Prompt-Engineering, Advance Prompt techniques. Scaling LLM's for response enhancement.

- **Deep Learning:**
  Deep Learning Model Training with hyper-parameter Tuning in Computer Vision ,Vectorization, Forward Propagation, Backward Propagation, Gradient descent, Momentum, Adam Optimization, L2 Regularization, Dropout Regularization,Early Stopping, Data Augmentation, Softmax regression, CNN, VGG16, YoloV3,YoloV4,YoloV8, MobileNet-V3, CUDA.

CERTIFICATIONS

- Convolution Neural Networks
  Coursera • 2021
- Structuring Machine Learning Projects
  Coursera • 2021
- Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization
  Coursera • 2021
- Machine learning
  Coursera • 2021
- Neural Network and Deep Learning
  Coursera • 2021