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Qaiser Abbas

ML Engineer | Data Scientist

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Seasoned Machine Learning Engineer with 4+ years of industrial experience in Deep Learning, Computer Vision, Natural Language Processing, and Data Science. Strong R&D professional currently working as a Senior Machine Learning Engineer at Octopus Digital.

Technical Skills

Programming Languages	Python, C++, MATLAB (Basic), JS (Basic), SQL
Generative AI	LangChain, LlamaIndex, OpenAI SDK, HuggingFace
Deep Learning	Keras, TensorFlow, OpenCV, FastAI, PyTorch, OpenVino, Transformers, SpaCy, NLTK
Machine Learning	Numpy, Pandas, scikit-learn, Matplotlib, Seaborn
Tools	Linux, VS Code, Jupyter-Notebook, Google Colab, Postman, Streamlit
Technologies	Git, FastAPI, HTML, CSS, Docker, Azure, AWS
Soft Skills	Time Management, Leadership, Communication, Team Work

Experience

Sr. Machine Learning Engineer **Aug 2024 — Present**
Octopus Digital Lahore, Pakistan

- Applying Machine Learning across Manufacturing, Energy, Oil & Gas, and Consumer Goods sectors.
- Focusing on predictive maintenance, industrial fault detection, industrial quality prediction, and demand forecasting.
- Developing cutting-edge products that enhance operational efficiency and performance, driving innovation and optimizing processes in diverse industrial applications.

Sr. Machine Learning Engineer **Nov 2022 — Aug 2024**
SDSol Technologies Lahore, Pakistan

- Designed and developed an audio analysis pipeline for psychological applications using LLMs (Whisper and GPT)
- Developed a multiprocessing GPU based pipeline for audio (therapy sessions) processing.
- Utilized LLMs (GPTs) for development of a personalized treatment plan generation for mental health to assist therapists.
- Finetuned a GPT-3.5 Turbo for customized treatment plan generation using OpenAI SDK and deployed using FastAPI on AWS EC2.
- Trained small langauge models (BERT, ALBERT) for customer query classification for reducing OpenAI API costs.
- Leveraged LangChain and LlamaIndex for custom document question answering bot.
- Developed a website assistant bot using GPT and LlamaIndex and deployed using FastAPI.
- Pioneered the development of a GPU-accelerated backend daemon on AWS EC2 instance for audio and text data processing.
- Utilized unsupervised association rule mining to develop a food recommendation engine and deployed it using FastAPI.
- Leveraged AWS services including EC2, S3, Lambda, ECR, and AppRunner to ensure seamless and scalable system deployment.
- Developed an insect classification model using transfer learning, optimized for CPU inference using Intel OpenVino and deployed using Azure Container Registry and Azure App service.
- Developed a tennis player/ball detection model via finetuning YOLOv8 and integrated it into active learning pipeline for automatic annotation using LabelStudio.
- Utilized deep transfer learning for development of aerial scene understanding models using remote sensing images.
- Developed a human related crime identification model via finetuning EfficientNet and trained on a custom dataset.

Software Engineer (Deep Learning & Computer Vision) **Nov 2021 — Jan 2022**
Wortel AI Remote

- Created a robust weed detection algorithm using YOLOv5 and satellite imagery.
- Developed a medical speech recognition system by fine-tuning an Nvidia QuartNet model via NeMo library.
- Leveraged AWS S3 and MLFlow platforms for efficient deployment and continuous maintenance of deep learning models.

AI Instructor & Teaching Fellow **Mar 2021 — Sep 2022**
University of Engineering and Technology Lahore Lahore

- Effectively taught comprehensive undergraduate courses in both AI & ML, including theory and hands-on lab sessions.
- Collaborated closely with senior faculty for development of AI/ML course content & preparation of research grant proposals.
- Authored a research proposal titled ”Tea Disease Detection using Machine Learning and Remote Sensing.” which secured a research grant of PKR 3.5 Million from the Higher Education Commission’s National Research Program for Universities.

Freelance Deep Learning Engineer **Nov 2020 — Mar 2021**
UpWork & Freelancer Remote

- Developed an image captioning algorithm for image retrieval by leveraging natural language descriptions of images.
- Designed and developed a GAN model specifically tailored for the generation of synthetic COVID-19 CT scans.
- Developed a face recognition model using a custom developed CNN.
- Utilized SHAP and LIME for developing interpretable image classification models.

Research Assistant (Deep Learning) **Jan 2020 — Oct 2020**
Bioinformatics Research Lab, UET Lahore, Pakistan

- Worked with Prof. Dr. Usman Ghani for detection of rare & lethal Acral Lentiginous Melanoma using dermoscopic images.
- Designed and implemented a specialized CNN architecture to develop an effective detection system for acral melanoma.
- Actively participated in Plant Disease Detection projects, leveraging deep learning and leaf image datasets.

Computer Vision Engineer **Aug 2019 — Dec 2019**
Wizdojo Technologies Lahore, Pakistan

- Developed a vehicle registration plate detection system using Mask R-CNN and Faster-RCNN.
- Collected & labeled data from live surveillance cameras & trained a Mask-RCNN model to segment the vehicle registration plates.
- Designed a pipeline for extracting text from segmented licese plate using Tesseract OCR.
- Developed a static website using HTML/Boostrcap/CSS for the company's product FuelAI.

Education

MS Computer Science **Sep 2018 — Dec 2020**
University of Engineering and Technology Lahore, Pakistan | Top 10% CGPA 3.78/4.00

- Thesis: Detection and Prediction of Acral Lentiginous Melanoma in Dermoscopic Images using Deep Learning

BS Information Technology **Oct 2014 — May 2018**
University of Sargodha, Sargodha, Pakistan | Gold Medalist CGPA: 3.63/4.00

- FYP: Energy Optimized Smart Surveillance System using a Raspberry Pi and Pi Camera

Certifications

- Python 3 Programming Specialization by University of Michigan July 2020
- Deep Learning Specialization by deeplearning.ai April 2021
- Mathematics for Machine Learning by Imperial College London Sep 2020
- AI for Medical Diagnosis by deeplearning.ai June 2020

References

- Prof. Dr. Muhammad Usman Ghani Khan
  Professor & Chairman Department of Computer Science, UET Lahore, Pakistan
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- Dr. Sadaf Hina
  Lecturer, Department of Computer Science, University of Salford, the UK
  email: `s.hina@salford.ac.uk`
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