Ali Subhan

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Professional Summary

AI Engineer with 3+ years of experience developing and deploying machine learning models at scale. Specialized in deep learning, NLP, and computer vision with a track record of delivering production-ready AI solutions. Passionate about leveraging cutting-edge research to solve real-world problems.

Education

Erasmus Mundus Joint Masters in Artificial Intelligence (EMAI) **Barcelona, ES**
Masters in Artificial Intelligence *Sep 2024 – Present*

National University of Sciences and Technology (NUST) **Islamabad, PK**
Bachelor of Electrical Engineering *Sep 2020 – Aug 2024*

Experience

Deep Learning Engineer **Jan 2023 – Jun 2024**
OPTImization and MAchine Learning (OPTIMAL) Lab *Islamabad, PK*

- Built pose estimation and Action Recognition pipeline using Transformers/3D-CNNs with 30+ FPS real-time inference
- Developed GAN-based shadow removal system improving downstream CV model accuracy by 18% in varying lighting
- Engineered YOLO fiber-optic bifurcation detector achieving 94% mAP, deployed via ONNX/TensorRT for edge devices
- Designed gait recognition architecture (3D-CNN + GCN) achieving 95% accuracy on CASIA-B, OU-MVLP benchmarks

Machine Learning Engineer **Jun 2022 – Sep 2022**
Electronic System Design Automation Centre (ESDAC) *Islamabad, PK*

- Built CV pipeline for fringe pattern detection using YOLOv5 and EfficientDet, achieving 91% detection accuracy
- Optimized models for Jetson Nano and Raspberry Pi using TensorRT FP16 quantization, achieving 3x faster inference
- Integrated signal processing with deep learning to enhance detection robustness, improving reliability by 25%

Projects

Gait-Based Person Identification System | *PyTorch, 3D-CNN, LSTM, GCN* **2023–2024**

- Built multi-stream deep learning architecture combining 3D-CNNs, LSTM, and GCN for biometric identification
- Achieved 95% accuracy on CASIA-B and OU-MVLP benchmarks with real-time inference capability
- Published research paper in Heliyon journal (Under Review) on gait recognition | GitHub

Real-Time License Plate Recognition System | *YOLOv5, PyTorch, TensorFlow, OpenCV* **2024**

- Developed YOLOv5-based ANPR system achieving 99.4% character recognition and 96.7% mAP on CCPD dataset
- Optimized pipeline for real-time performance (35ms/frame, 40+ FPS) with improved accuracy on challenging conditions
- Deployed production-ready solution for traffic monitoring and law enforcement | GitHub

QuizGen - AI-Powered Quiz Generator with RAG | *LangChain, LLaMA-3, Groq API, Streamlit* **2024**

- Created intelligent quiz generation system using LLaMA-3-8B with RAG for context-aware question creation
- Integrated SerpAPI and Wikipedia for knowledge retrieval with automated evaluation and structured output
- Built interactive web interface with document processing (PDF/TXT) and CSV export | GitHub

Malaria Detection from Microscopy Images | *TensorFlow, Keras, CNN* **2023**

- Built CNN-based medical imaging system for malaria parasite detection achieving 92% accuracy and 0.88 F1-score
- Applied data augmentation and optimization techniques for robust model performance | GitHub

Leo - Interactive Shopping Assistant with Voice AI | *LangChain, LLaMA, ElevenLabs* **2024**

- Developed conversational AI agent for indoor navigation and customer queries using LangChain and LLaMA models
- Integrated ElevenLabs TTS for natural voice interactions in retail robotics | GitHub

GariAI - Car Price Prediction for Pakistani Market | *Scikit-Learn, Pandas, Python* **2023**

- Developed machine learning model for automotive price forecasting using Random Forest (MSE: 0.0509)
- Performed EDA and feature engineering identifying engine capacity and mileage as key price drivers | GitHub

Technical Skills

Languages: Python, C++, SQL
ML/DL Frameworks: PyTorch, TensorFlow, Jupyter, scikit-learn, Keras, Pandas, NumPy, XGBoost
NLP/LLMs: Transformers, LangChain, Hugging Face, GPT-4, BERT, LLaMA, Fine-tuning, OpenAI, RAG, Tokenization
Deep Learning: Neural Networks, CNN, RNN, LSTM, GAN, Transformers, Attention Mechanisms, Transfer Learning
Computer Vision: OpenCV, YOLO, ResNet, Vision Transformers, Object Detection, Image Segmentation
MLOps and DevOps: Docker, Kubernetes, MLflow, Weights & Biases, Git, Github Actions, Jenkins, CI/CD
Cloud Platforms: AWS (SageMaker, EC2, S3, Lambda), GCP, Microsoft Azure
Other: Linux, FastAPI, Flask, Streamlit, A/B Testing, Model Optimization, CUDA

Publications

Person Identification Using Gait with Fused Graph and 3D Convolutional Architectures **Heliyon**

- Co-authors: Dr. Ahmad Salman, Ali Subhan, Ahsan Bilal, Hamza Ali Heliyon

Certifications & Courses

Machine Learning - Stanford University 2023
Deep Learning Specialization - DeepLearning.AI 2023
Getting Started with AI on Jetson Nano - NVIDIA Deep Learning Institute 2023
TensorFlow Developer Professional Certificate - DeepLearning.AI 2022
Deep Learning for Computer Vision with Python and TensorFlow - NeuraLearn 2022

Conferences & Seminars

International Conference on AI by IEEE (ICAI'23) - Islamabad, Pakistan 2023
Google DSC DevFest'21 - Islamabad, Pakistan 2021
Hack Club CodeFest'21 - Islamabad, Pakistan 2021

Achievements & Awards

Erasmus Mundus Scholarship - Fully Funded Masters by European Union 2024
Best Adjudged Industry Project - NUST SEECS Open House 2024 2024
2nd Position - Intermediate Exams BISE Faisalabad 2020
Quaid-e-Azam Scholarship - Scholarship for Education Excellence 2020

Language Skills

English: Fluent (IELTS: 8 Bands)
Urdu: Native
Punjabi: Native
German: Basic