Mohammed Harfan

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Experiences

Software Engineer - Machine Learning **Feb 2022 - Jul 2024**

Valtech **Global Projects (Louis Vuitton, Linde)**

- Developed and deployed multilingual **AI chatbots** using **Transformer-based LLMs** and **RAG pipelines** (**LangChain**, **FAISS**), improving **document retrieval accuracy** by **50%** and reducing **response latency** by **2×**.
- Built end-to-end MLOps pipelines with **MLflow**, **Docker**, and **FastAPI** for training, versioning, and deploying **NLP models** securely across enterprise environments.
- Fine-tuned **BERT** and **GPT-style models** for multilingual entity recognition and intent classification, ensuring **GDPR-compliant** data handling and scalable **AI deployment**.
- Optimized **inference** using **ONNX Runtime** and **GPU acceleration**, and collaborated on **cloud-native LLM integration** across global deployments

Software Engineer – Front-End Development **Feb 2019 - Jan 2022**

Valtech **Bangalore, India**

- Developed scalable **React dashboards** and **optimised APIs**, reducing page load times by **40%** and improving user engagement by **15%**.
- Designed web applications and **integrated backend APIs** for retail and e-commerce platforms, enabling the launch of **3 global rollouts.**
- Delivered proficient Level 2 support for Louis Vuitton's XStore POS across EMEA, **reducing resolution times by 35%** with streamlined workflows.
- Authored **20+ knowledge base articles**, which improved issue resolution and collaborated with global IT teams, ensuring **24/7 operational continuity** for 500+ retail stores.

Projects

Autonomous Driving Object Detection (Thesis Project)

- Built a **benchmarking framework** comparing **YOLOv11** and **Faster R-CNN**, achieving a **+3.4% mAP improvement** on the **KITTI** dataset.
- Implemented **data preprocessing**, **hyperparameter tuning** (learning rate, anchor boxes), and evaluated models using **precision**, **recall**, and **mAP** metrics.

Facial Recognition for Smart Class Attendance (Edge AI System)

- Designed a **real-time facial recognition system** using **OpenCV**, **TensorRT**, and **ONNX Runtime**, achieving **98% recognition accuracy** on edge devices.
- Optimized **model inference** for low-latency performance, reducing **processing time by 40%**.
- Deployed system on **Raspberry Pi**, enabling scalable **Edge AI** adoption for educational institutions.

Education

M.Eng. Computer Vision & Artificial Intelligence **Sep 2024 - Jul 2025**

University of Limerick **Limerick, Ireland**

Advanced topics in Deep Learning, Computer Vision, Machine Learning Algorithms, Image Processing, and Neural Networks, focusing on Practical AI applications.

B.E. Electrical & Electronics Engineering **Sep 2014 - Jul 2018**

Anna University, India

Fundamentals of Digital Signal Processing, Microprocessor Systems, Data Structures, Algorithms, and Core Electrical Engineering Principles.

Skills

Technical Skills : Python, Object Detection (YOLO, Faster R-CNN, DETR), Image Classification, Edge AI Optimization, PyTorch, TensorFlow/Keras, Scikit-learn, OpenCV, JavaScript, React, HTML/CSS, SQL, Model Optimisation, Transformers, RAG, LangChain

Tools & Platforms : Git/GitHub, Docker, HPC (Tesla V100), Google Cloud, FastAPI, MLflow, Pandas, NumPy, CI/CD, Jupyter, Rest APIs, AWS