Marib Sultan
Lead Software Engineer - Ai

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Curious engineer with a diverse hands-on experience on deep learning frameworks, computer vision tools, LLMs, frontend/backend technologies as well as DevOps tools. Looking forward to gaining further experience in deep learning and machine vision.
Immensely interested in Cosmos, wants to witness humanity discover life beyond Earth.

Experience

Folio3.Ai

Lead Software Engineer Ai | Aug 22- Present

- Gather client requirements and turn business problems into end to end AI solutions.
- Developed various LLM solutions around RAG & function calling, also added observability to those using LangFuse & LangSmith.
- Architected a LLM agent orchestration mechanism/framework to achieve domain specific software engineering tasks.
- Lead various engineering teams consisting of AI/ML, Backend & Frontend Engineers.
- Optimized video processing pipeline with hardware enabled encoding/decoding using Gstreamer, OpenCV and NVIDIA plugins.
- Configured CICD pipelines on Bitbucket & GitHub to build and publish docker artifacts as well as npm packages.
- Leveraged technologies & techniques like ONNX, TensorRT and batch inferencing to boost throughput of object detection models.
- Developed backend services using NestJs, Prisma & MongoDB.
- Configured a video streaming system with Kafka, RabbitMQ & an Nvidia Encoder.
- Created work breakdown structures and development timelines for new projects.

Senior Software Engineer | May 21- Jul 22

- Used sockets and multi-threading to setup a communication channel b/w Python application running on a Desktop and a Tablet on Intranet.
- Optimized capture of video footage from IP cameras using an efficient Gstreamer pipeline to avoid redundant processing.
- Developed a custom image processing algo to detect the inner/outer edges of a line.
- Used camera lens distortion correction techniques to achieve more accurate results for certain measurements.
- Created a desktop application with PyQT that ran deep learning model inference on connected IP camera streams and packaged it to a Linux Debian installer.
- Wrote custom webpack configuration to build framework agnostic embeddable JavaScript widgets

Systems Limited

Software Engineer | Jun 17- May 21

- Developed web applications using Angular and React framework.
- Developed cross platform hybrid mobile apps using Ionic and Cordova device plugins.
- Modified Microsoft's ecommerce SDK to suit different customer needs.
- Wrote unit tests for frontend components using React Testing Library and Jest.

Hobby Projects

Project Shadow
An Ai agent, built with LangChain, capable of performing code generation and version control tasks. It accepts instructions in English text and audio format.

Picture in Picture
A tool that given a base and an image corpus, outputs a new image, using a KD-Tree, composed of multiple smaller images made to look like the base image.

Cookie Blocker
A chrome extension to block third party cookies based on ratings from a third party API

Education

MBA Marketing   2019-2021
Institute of Business Management

BS Computer Science   2013-2017
FAST-NUCES

Tech Used

Python, OpenCV, NumPy, PyTorch, TensorFlow, ONNX, TensorRT, Docker, Kafka, Redis, PyInstaller, Gstreamer, LLMs, ZeroMQ
React, Angular6, Ionic3, Highcharts, Typescript, ESLint, MongoDB, NodeJS, NextJs, Prisma, Webpack, GitHub & Bitbucket Workflows, Jest, RTL

Tech Talks

Fundamentals of Neural Networks
FAST University
Presented a tech session at FAST on the fundamentals of neural networks. The session was focused on building an intuitive understanding of why and how neural networks work & learn.

A Gentle Intro to LangChain
NED University
Presented a tech session at NED on the LangChain framework. The session mainly focused on Chains and briefly touched how vector databases can make help deal with very large data.

How Video Works
Folio3
Presented a tech session on how video works at Folio3. The session was targeted towards building an understanding of what image & video compression is and how we can leverage hardware to accelerate the process. It also briefly discussed video streaming over RTSP and HLS.

Side Interests

Space exploration, Astrophysics, Flying Aircrafts