Syed Abdul Khader Email: abdksyed@gmail.com

SKILLS

Programming Languages: Python, SQL, C++.
Programming Frameworks: PyTorch, OpenCV, Huggingface, Pandas, NumPy, Matplotlib, FastAPI.
Technologies: Deep Learning, Computer Vision, NLP, Docker, Git, AWS, Linux, Weights and Biases.

EXPERIENCE

Mass. General Hospital, Harvard Medical School Boston, MA
Research Scholar April 2023 - Present

- Binary and Multiclass Video Object Segmentation(VOS) of surgical video data, on both public and private datasets, achieving sota results, with mean IOU of **92.26%** and **74.43%** respectively.
- Developed specialized Visual Language Models(VLM) with different early and late fusion techniques for natural language question answering on surgical video frames.
- Achieved sota results with mean Average Precision of **31.2%** on highly imbalanced multi label action recognition in surgical videos.

Infinstor Remote
Data Scientist June 2021 - July 2022

- Architected end to end Document Understanding pipeline to extract and analyse information from document images using LayoutLM series.
- Deployed an OCR model developed with CNN-LSTM-CTC Loss, to reduce the manual process **turn around time by 90%**.
- SQL Queries and Cloudwatch logs Anomaly detection using LogBERT. Blog post

Infor Hyderabad, India
Dev Bussines Analyst July 2019 - April 2021

- Led the functional integration of Infor ERPs with Microsoft, and Salesforce CRMs.
- Automated Customer Data Migration, reducing migration duration from 2 days to minutes.
- Trained new developers on Python, with a satisfaction score of **97%**

PUBLICATIONS

- **Medical Surgery Stream Segmentation to Detect and Track Robotic Tools**. *IEEE International Conference on Artificial Intelligence for Medicine, Health, and Care*
- **Utilizing Artificial Intelligence for Surgical Anatomy and Phase Recognition in Thoracic Surgery**. *IEEE International Conference on Biomedical Engineering Instrumentation.*
- **Automatic Detection of the Pulmonary Artery During Robotic Right Lower Lobectomy Using Multi-Headed Deep Learning**. *103rd Annual Meeting of The American Association for Thoracic Surgery*

PROJECTS

nano ChatGPT

- Supervised finetuning GPT-2 variants on Anthropic HH-RLHF dataset, along with Reward model training on the SFT model with LoRA. Achieved **60-68%** accuracy in reward model training on GPT-2 variants.
- Using ChatGPT as humany proxy to select preference between pre-trained, SFT and RLHF model, it favours SFT or RLHF model **90%** of the time over pre-trained GPT2.

Panoptic Segmentation on Custom Dataset using DETR *Project Link:* DETR

- **mAP0.5:0.95 of 61%** for bbox and Panoptic Quality(PQ) of **54.6%** over both things and stuff

EDUCATION

Plaksha University August 2022 — July 2023
Technology Leaders Program GPA: 9.6
Awards: Best student commitee and Spirit of Plaksha Credit standing: Provisional Gold Medal