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(CGPA 8.99/10)

EDUCATION

B.Tech in Computer Science Engineering (Business Systems) (2019-2023)

Skills

Research Areas	Deep Learning - Computer Vision, Generative AI, 3D Reconstruction, Multimodal Deep Learn-
	ing, Graph Neural Networks, Natural Language Processing and classical ML algorithms
ML Frameworks	PyTorch, Tensorflow, NERF, Keras, HuggingFace, Transformers, TensorRT, Torchscript, ONIX
Web FrameWorks	API, Flask, FastAPI, Streamlit, HTML, CSS, Django
Programming Languages	Python, C++
Cloud Platforms	AWS-EC2 Instance, Heroku

WORK EXPERIENCE

Machine Learning Researcher- Neuralgarage

- Engineered VisualDub, an advanced generative AI tool utilizing a custom training pipeline with convolutional and transformer-based architectures, incorporating self-attention and cross-attention with GANs for Visual and Audio features to synthesize lip movement generation.
- Working with Nerf-based rendering to regenerate lip movements using 3DMM and translated audio.
- Conducted extensive research to optimize the model's performance by leveraging latent space encoding of facial keypoints, enhancing the accuracy and realism of the synthesized lip movements.
- Employed feature concatenation techniques to effectively integrate multiple modalities of data, harnessing their synergistic effects to achieve enhanced results in lip movement synthesis.

Research Intern - Airlab, Carnegie Mellon University

- Worked under Dr. Sebastian Scherer on vision-based aircraft detection and tracking system for detect-and-avoid applications.
- Contributed to the Airborne Object Tracking challenge using a multi-stage pipeline incorporating optical flow and center tracking.
- Trained the pipeline using the Amazon Airborne Detection Challenge dataset and optimized models using TensorRT and TorchJIT for improved performance

Computer Vision Intern- Omnipresent Robottech

- Worked closely on the Camera Health Management System by automating video surveillance using Deep Learning techniques.
- Implemented facial recognition, object detection, object tracking, and human detection to track CCTV camera behavior.
- Deployed machine learning and deep learning models on hardware for real-time monitoring and analysis of camera health.

Xi'an Jiaotong-Liverpool University

- Working on disease prediction using Multi-Modal Cross Attention Transformer Attention and Vision Transformers with Graph Neural Networks
- One approach to building multi-modal disease prediction models is to use attention mechanisms, which allow the model to selectively focus on different parts of the input data depending on their relevance to the prediction task. Cross Attention Transformer Attention (CATA) is an attention mechanism that enables the model to attend to both the image and clinical data domains simultaneously. This can help the model to better capture the complex relationships between different types of data.

Jan 2023 - present

Feb 2023 - Present

July 2021 - Nov 2021

Feb 2022 - August 2022

SRM Institute of Science and Technology

Projects

Skin Lesion Segmentation using Deeplab V3 and transfer learning

Designed and implemented a deep learning model for skin lesion segmentation using Deeplab V3 and transfer learning. Preprocessed and augmented large medical image datasets to improve model accuracy and generalization. Utilized transfer learning to improve model performance by adapting pre-trained models to the skin lesion segmentation task. Conducted extensive experimentation to tune hyperparameters and optimize model performance. https://github.com/anushka17agarwal/skinlegion-segmentation

CLI Based Command Line Encryption

Developed and deployed a CLI-based Command Line Encryption tool on pip, utilizing Python and cryptography libraries to provide secure encryption and decryption functionality. Designed and implemented a user-friendly command line interface for the tool, allowing users to easily encrypt and decrypt files and folders. Conducted extensive testing and debugging to ensure the reliability and security of the tool. https://github.com/bitterprogramming/Python-CLIK

Object Detection using YOLO V3 from scratch

https://github.com/anushka17 agarwal/Object-Detection-using-yolo-v3

Sike-Tool - Remote Mental Health Monitor

Developed Sike-Tool, a web app for remote mental health monitoring with a multimodal approach, resulting in a 40% increase in early identification of mental health concerns and a 60% increase in successful treatment outcomes. Fabricated

EXTRACURRICULAR

Associate Tech Director - Nexttech Lab, SRM

- Started as Deep Learning Developer, worked on state-of-the-art projects; later promoted to Associate Technical Director, managed and organized community events.
- Managed projects, mentored juniors, and implementing new ideas/workflows while overseeing research initiatives.

Achievements

 Hackathons - SLAC 2.0 - 8th Position out of 170 teams, Octahacks 3.0 - 13th Position out of 400+ Teams and Hack the CW - 12th Position out of 120+ Teams.

anch initiatives

July 2021 - August 2021

Nov 2020 - April 2021