Aditi Shanmugam

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Education

BMS Institute of Technology and Management **August 2018 – July 2022**
Visveswaraya Technological University - B.E Electronics and Telecommunications *Bangalore, Karnataka*

Technical Skills

Core Competencies: Machine Learning, Deep Learning, Computer Vision, Image Processing, Data Visualization, Data Structures, Algorithms

Programming Languages: Python, C++, MATLAB, LaTeX

Tools and Frameworks: Pytorch, Keras, TensorFlow, OpenCV, SciPy, Git

Operating Systems: Linux, MacOS

Work Experience

Inferigence Quotient LLP **July 2022 – Present**
Computer Vision Engineer *Bangalore, India*

- Working on development of an object recognition and tracking pipeline for Unmanned Aerial Vehicles using C++ for deployment on NVIDIAs hardware accelerated devices using VPI, an image processing and computer vision library.

Inferigence Quotient LLP **April 2022 – July 2022**
Computer Vision Intern *Bangalore, India*

- Contributed to a Unmanned Aerial Vehicles image capture to Satellite Image Registration pipeline for Geo Location using Python and OpenCV. Modified and fine tuned existing algorithms for Template Matching, Sparse and Dense Optic Flow to achieve close to 100.0% frame registration in every test case.
- Delivered performance on a Real-time system with HD video with latency below 500ms, and throughput of 25fps, on a moderate capacity GPU.

Visual Computing Lab, Indian Institute of Science (IISc) **May 2021 – April 2022**
Research Intern *Bangalore, India*

- Implemented Superpixel Masking and Inpainting (SMAI) using GAN and Autoencoder based networks for Anomaly Detection and Correction.
- Incorporated Multi-Exposure Fusion for synthetic image enhancement to achieve an overall accuracy of 80.0%.
- Developed a framework to perform Source-Free Multi-Label Domain Adaptation (SF-MLDA) with noise in training source data.
- Integrated Co-Teaching algorithm to reduce noise present in the dataset to improve accuracy by 30.0%.

Fellowship.ai **January 2021 – April 2021**
Machine Learning Fellow *Bangalore, India (Remote)*

- Developed an end-to-end functional model for zero-shot food detection present in an in-oven setting using the Contrastive Language-Image Pre-training model (CLIP) by OpenAI.
- Developed webscrapers to generate custom datasets by scraping food blogs, and Instagram using Scrapy and Selenium. Expanded dataset using data augmentation techniques.
- Performed transfer learning on ResNet50 and ResNet101 variants to determine baseline results.
- Obtained a final Top-1 accuracy of 97.22% and Top-3 accuracy of 100.0% using a custom dataset containing only 16 images per class.

Volunteering

Emergency Response Team, Rotary 3190 War Room **January 2021 – July 2021**

- Volunteered with the emergency response team of a COVID-19 War room operated by Rotary District 3190. Helped develop a web application to assist patients effected by the coronavirus find accommodation in hospitals, request an ambulance and procure medical supplies.

Emergency Response Team, BBMP East Zone War Room **August 2020 - November 2020**

- Volunteered for the East Zone BBMP War Room. Carried out contact tracing and helped establish a network of teleoperators trained to connect patients in home quarantine with medical professionals.