

# ADITI SHANMUGAM

Malleshwaram West, Bangalore 560055

+91-9538899333 [e-Mail](#) [Profile](#) [LinkedIn](#) [Github](#)

## Education

### BMS Institute of Technology and Management

Visveswaraya Technological University - B.E Electronics and Telecommunications

August 2018 – July 2022

Bangalore, Karnataka

## Technical Skills

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

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

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

**Operating Systems:** Linux, MacOS

## Work Experience

### Inferigence Quotient

April 2022 – Present

Computer Vision Engineer, Intern(April -July '22)

Bangalore, India

- Responsible for development of an object detection and tracking pipeline to be deployed on Unmanned Aerial Vehicles using C++ for deployment on Jetson devices using OpenCV and Gstreamer.
- Developed utility modules and communication modules for telemetry data transfer over Sockets, Ethernet, serial port in C++.
- Contributed to development of pipelines to perform frame registration on images captured by UAVs to Satellite Images for Geo Location using C++, 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.
- Developed visualization codes to generate interactive plots to visualize performance and results in Python.
- 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

- Integrated Superpixel Masking and Inpainting (SMAI) into a custom GAN and Autoencoder based network developed using Pytorch for Anomaly Detection and Correction.
- Incorporated Multi-Exposure Fusion for synthetic image enhancement into the pipeline, to reduce artifacts produced in the generated images and achieve an overall accuracy of 80.0%.
- Contributed to the development of a novel framework to perform Source-Free Multi-Label Domain Adaptation (SF-MLDA) using Pytorch.
- Researched various techniques to tackle noise in training data and Integrated the Divide-Mix algorithm into SF-MLDA to improve accuracy by 7.0% .

### Fellowship.ai

January 2021 – April 2021

Machine Learning Fellow

Bangalore, India (Remote)

- Developed an end-to-end functional application to identify various for zero-shot food detection present in an in-oven setting using the Contrastive Language-Image Pre-training model (CLIP) by OpenAI.
- Developed web scrapers to generate custom datasets by scraping food blogs, and Instagram using Scrapy and Selenium. Increased the size of the 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.