ADITI SHANMUGAM

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Education

BMS Institute of Technology and Management, Yelahanka   **Aug 2018 – July 2022**
Bachelor of Engineering in Electronics and Telecommunications   *Bangalore, India*
- Student Coordinator - Gender Champion Cell.
- Member - IEEE Student Chapter.
- Member, International Service Director(2020-2021) - Rotaract Club of BMS Yelahanka.
- Member - e-Yantara Robotics Lab.

Technical Skills

Programming Languages: Python, C++, MATLAB, ROS (Robotic Operating System), HDL (Hardware Description Language), LaTeX.

Frameworks: Pytorch, Keras, TensorFlow.

Work Experience

Visual Computing Lab, Indian Institute of Science (IISc)   **May 2021 – Present**
Research Intern   *Bangalore, India*
- Performed research on Superpixel Segmentation, Masking and Image Inpainting using Generative Adversarial Networks and Autoencoders for anomaly detection and correction. Implemented Multiple Exposure Fusion for synthetic image enhancement.
- Proposed and developed a Novel framework to implement data augmentation and pseudo label generation and refinement for Unsupervised Multi Source Domain Adaptation with noise in source data.

Fellowship.ai   **Jan 2021 – April 2021**
Machine Learning Research Fellow   *Bangalore, India*
- Performed Hyperparameter-tuning for the Contrastive Language-Image Pre-training model for zero-shot object detection.
- Curated custom datasets by webscraping using Beautiful Soup, Scrapy and Selenium.
- Deployed web applications for the trained model using StreamLit and Heroku.

Projects

Multimodal Machine Learning for Object detection.   **Aug 2021 - Present**
- Implementing a Language-Image pretraining for Zero-Shot Object Detection and testing with custom datasets with domain shift.

Simulation of Path Planning algorithms using MATLAB   **June 2021 - Aug 2021**
- Simulated various path planning algorithms such as Dijkstra's algorithm, A* Grid search algorithm, Grassfire algorithm etc, using MATLAB and compared their performance by observing the time complexity and efficiency of the algorithms.

Smoke and Fire detection with Computer Vision and IoT   **April 2021 - June 2021**
- Trained and deployed a Deep Neural Network on a raspberry pi using MATLAB for fire and smoke detection. Compared efficiency of various Convolutional Neural Networks with early convolutions for deployment on Raspberry Pi.

Automated Waste Classification and Segregation   **Sept 2020 - March 2021**
- Designed a simple shallow neural network for image classification task using Python along with a waste segregation model using an arduino board and servo motors that performed the sorting task.

Publications

Waste Classification and Segregation, Machine Learning and IoT Approach   **April 2020**
2nd International Conference on Intelligent Engineering and Management, 2021.

Volunteering

Rotary 3190 COVID War Room   **Jan 2021 – July 2021**
Emergency Response Team   *Bangalore, India*

BBMP COVID War Room   **July 2020 – Sept 2020**
Emergency Response Team   *Bangalore, India*