BHARGAV NARAPAREDDY

Ann Arbor, Michigan| narbhar@umich.edu

Education

University of Michigan Ann Arbor **GPA: 3.592/4.00**
M.S. in *Electrical Engineering – Signal and Image Processing & Machine Learning* April 2020
Relevant Course Work: Computer Vision, Deep Learning, Intro to Aerospace Computing, Data Mining and Statistical Learning, Self-Driving Cars, Matrix Methods for Machine Learning, Probability, AI for Electrical Engineering

Vellore Institute of Technology, Vellore, India **GPA: 3.450/4.00**
B.Tech. in *Electronics and Communications Engineering* & Minor in *Renewable Energy Technologies* October 2017
Relevant Course Work**:** Neural Networks and Fuzzy Control, Digital Signal Processing, Control Systems, Data Structures and Algorithms

Work Experience

Graduate Research Assistant – University of Michigan Jun 2019- Aug 2019
- Worked on intelligent personal security device that employs computer vision and deep learning semantic segmentation techniques to analyze image and video data stored in cloud.
- Static scene separation, skyline detection, Segmentation network and PSP net were explored in implementation.

Summer Internship – National Aerospace Laboratory, India Jun 2016- Jul 2016
- Worked on establishing communication protocols on Cypress PSoC-5LP based on ARM Cortex M3 microcontroller and STM3240G-eval board based on ARM Cortex M4 microcontroller to develop IOT systems for autonomous drone program.

Projects

Network Intrusion Attack Classification using Adaboost Sep 2019- Dec 2019
- Classified network intrusion attacks on a US Airforce simulated LAN dataset where primary challenges were severe class imbalance as well as generalizing to new attack types that are not seen before.

ORB Visual SLAM based on stereo images Jan 2019- Apr 2019
- Implemented Oriented FAST and Rotated BRIEF feature descriptor based Visual SLAM on KITTI odometry dataset by combining Visual Odometry and Pose graph optimization for global optimization.

Single-Image Crowd Counting using Convolutional Neural Networks Jan 2019- Apr 2019
- Estimated crowd count using Multi Column Convolutional Neural Networks (MC-CNN) using density map generation.
- Improved MC-CNN results by a healthy margin using Cascaded Multi-Task Learning network by employing a high level prior to estimate crowd count in conjunction with density map estimation.

Mental Health Analysis in Online Forums using Hierarchical Deep Models Jan 2019- Apr 2019
- Evaluation of mental health by means of label classification on CLPsych Dataset using Hierarchical Deep Convolutional Neural Network (HD-CNN) and Hierarchical Attention Network (HAN)
- Significantly improved F-score in classification of posts that are in urgent need compared to previous best models.

Classification and bounding box generation around vehicles using YOLO Sept 2018- Dec 2018
- Implemented the YOLO algorithm on AWS instance to detect bounding boxes around target cars based on LIDAR point cloud information and game engine snapshots as part of 'Self-Driving Cars' class project.

Publications & Achievements

- Bhargav, N., et al. (2017) "Forecasting air quality index based on Mamdani fuzzy inference system", ICOEI, 2017
- Special Achievements Award presented by VIT university, 2016
- Texas Webench Power Electronics Design Challenge winner, India, 2015.

Technical Skills

Coding/Frameworks: Python ● PyTorch ● R ● MATLAB ● Julia ● C ● HTML
Application Software: OpenCV ● Kiel µVision ● Git ● AWS ● Google Cloud
Publishing: Microsoft Office ● LaTeX

Leadership Skills

- Lead the Electronics division of American Society of Mechanical Engineers, VIT University under Team "Anant", to develop Disaster relief vehicle as part of SPDC 2016 and Automatic Collision Detection and Braking system in the Human Powered Vehicle Challenge 2016