SIDDARTH Meenakshi Sundaram

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EDUCATION

University of California, San Diego *CA*
Master of Science in Mechanical and Aerospace Engineering *Expected: June 2021*
Relevant Courses: Advanced Data Structures, Mathematics for Engineers, Machine Learning for Image processing, Deep Learning, Optimal Estimation, Teaching Assistant for Robotic Planning and Estimation **GPA:3.88/4**

National Institute of Technology, Tiruchirappalli *India*
Bachelor of Technology in Instrumentation and Control Engineering *Aug. 2015 - May 2019*
Relevant Courses: Neural Networks and Fuzzy Logic, Programming, Algebra and Probability Theory, Statistics

SKILLS

Coding Languages: C/C++, Python
Simulation/Design: Matlab, SCADA, Adams, TINA, PSpice, ROS, Gazebo
Software/Frameworks: Pytorch, Keras, CUDA, OpenCV, Keil μvision, LaTeX
Certifications: Data Structures, Aerial Robotics, Computational Motion Planning, Mobility in Robotics - Coursera

EXPERIENCE

Project Engineer - Industrial Automation lab
National Institute of Technology, Trichy, India *Nov 2018 - May 2019*
- Proposed a new architecture using a combination of Convolutional neural networks (CNN) and Long short-term memory (LSTM) to predict Systolic Blood Pressure (SBP) and Diastolic Blood Pressure (DBP) using Python/Tensorflow.
- Outperformed all the existing models in Machine Learning literature by more than 10% along with an added advantage of faster prediction and no manual feature extraction.
- Implemented network achieves a MAE of 8.823 mmHg and 6.763 mmHg for SBP and DBP respectively.

Research Intern - RAFT Lab
Indian Institute of Technology, Madras, India *May 2018 - July 2018*
- Calibrated an IMU (MPU-9025) and integrated with MG996R Servo and embedded C programming to control the Stewart platform
- Utilized Complimentary filter for combining accelerometer and gyroscope mesurements(sensor fusion) in real time.
- Simulated the roll, pitch and yaw of a system. The final Stewart platform fabricated has high accuracy(>99.9%) and precision in all 6 axes.

Robotics Research Fellow
Indian Institute of Space Science and Technology, Trivandrum, India *May 2017 - June 2018*
- Controlling a serial manipulator with six or more joints with simulation done using MATLAB and Adams.
- Learned usage of Linux, Robotic Operating System (ROS) and Gazebo during this process for simulation in various environments.
- Integrated Adams with MATLAB for the final simulation to control the chain manipulator.

Student Trainee
HONEYWELL - Engineering Services Division, Chennai, India *Dec 2016 - Jan 2017*
- Trained briefly in the safety practices and usage of Safety builder tool for configuring Safety Manager (Honeywell's advanced safety management system)
- Developed control modules for various functions using the Control Builder in the Configuration studio.

COURSEWORK PROJECT

Multi-Object detection using Deep Learning
Guide: Dr. Charles Deledalle *Oct. 2019 – Dec. 2019*
- Achieve multi-object detection with various deep learning models such as Fast R-CNN, Faster R-CNN, R-FCN, Single Shot Detector with various backbones such as ResNet and ResNeXt etc. using Python with Tensorflow, Pytorch packages.
- Achieved a ResNet mAP of 0.601 which was higher than mAP of 0.538 achieved by ResNeXt.
- Refuted a common misconception in the process.

Stop-Sign detection using Color Segmentation
Guide: Dr. Nikolay Atanasov *Jan. 2020 – Feb. 2020*
- Used various high-level features such as number of sides of the polygon and shape statistics such as Bounding box area to image area ratio and width to height ratios to improve detection. machine learning model Training done using Python.
- Results of various combinations of features were obtained and effectiveness of various features were discussed.

- **OTHER ACTIVITIES :** International Chess Player - played Chess Commonwealth Chess Championship representing INDIA —— Indian Engineering Olympiad Gold Medallist —— National Talent Search Examination Scholar - Top 0.1% of among 1.3 million candidates —— Awarded IIST Summer Research Fellowship.