

# PRUTHVI SANGHAVI

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## EDUCATION

### Master of Engineering in Robotics

Aug 2019 – May 2021

University of Maryland, College Park, MD

### Bachelors in Mechanical Engineering

Aug 2015 – May 2019

L.D.R.P Institute of Technology and Research, Gandhinagar, India

## TECHNICAL SKILLS

Programming:	Python, C++, JavaScript, C#
Software Development:	Version Control, Test Driven Development, Iterative Software Development Process
Frameworks and Libraries:	ROS, MATLAB, Unity3D, TensorFlow, Keras, PyTorch, OpenCV, Numpy, Matplotlib
Design:	SolidWorks, Fusion360

## CERTIFICATIONS

Getting Started with AI on Jetson Nano (Nvidia)

January 2021

Neural Networks and Deep Learning (DeepLearning.ai)

June 2020

## PROFESSIONAL EXPERIENCE

### Robotics Researcher (REZOOM UMD, College Park, MD)

January 2020 – Present

- Working on NVIDIA Jetson Nano to create an on-device behavior planning algorithm for self-driving electric scooter which detects and avoids pedestrians on the sidewalks
- Developing a python - OpenCV pipeline to detect parking spaces on the sidewalks using Intel RealSense D435i stereo camera.
- Conducting a Hardware in Loop Simulation on ODrive motor controller and Gazebo Simulator for electric-scooter self-righting mechanism feasibility study

### Robotics Engineering – Intern (Void Robotics, Boston, MA)

June 2020 – August 2020

- Designed an autonomous delivery robot in Fusion 360 and simulated the robot in ROS – Gazebo
- Developed Intel RealSense Sensor support and automatic port access functionality in Raspberry PI for the Navigation Software, packaged the Software and published it on standard APT repository to ease up the installation on Linux OS

### Summer Research Intern (ISRO, Ahmedabad, India)

January 2019 – May 2019

- Researched various Machine learning techniques and trained a model with sparse dataset for object detection and image classification in TensorFlow

## PROJECTS

### VoxelNet – 3D Object detection on Point Cloud Data | Python, TensorFlow, Open3d, OpenCV

- Performed object detection through the implementation of Region Proposal Network (RPN) and Convolutional Neural Network (CNN) on sparse 3D point cloud dataset.
- Evaluated the architecture by experimentation on KITTI Benchmark dataset for car and pedestrian detection.

### Path Planner | Python, ROS, Numpy, Matplotlib

- Implemented Dijkstra and A\* Algorithms on a point and a rigid robot and scaled it for use on a 3d robot in Gazebo simulation.

### Extended Kalman Filter | C++, CMake, Term2 Simulator

- Estimated the state of a moving object using noisy Lidar and Radar data measurements.

### Air Water and Land Surveillance Bot (AWL – SB) | Arduino, Additive Manufacturing, C++

- Designed and Prototyped a multi terrain spherical robot which enclosed a differential drive unit for land mobility and a quadrotor configuration for air mobility.

### TENEZBOT: A tennis ball collecting robot | C++, OpenCV, ROS, GMock, Travis CI, Coveralls

- Applied Agile Iterative Process to design and implement a tennis ball detection and collection pipeline.
- Ensured the quality of the code using Test Driven Software Development process.