

Shastri Ram

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EDUCATION	Carnegie Mellon University, Pittsburgh PA	
	❖ MSc Robotics	Aug 2016 – Present
	❖ Expected Graduation May 2018	
	❖ BS Electrical and Computer Engineering, Additional Major in Robotics (Hons)	Aug 2012 – May 2016
	❖ Programming Languages: C, C++, ROS, Simulink, Python, MATLAB, Arduino C, Pascal	
RELEVANT COURSES	❖ Machine Learning, Computer Vision, Kinematics Dynamics and Controls, Mechatronics, Systems Engineering, Mobile Robot Programming, Embedded Control Systems, Artificial Intelligence	
WORK EXPERIENCE	Research Assistant	Oct 2012 – Dec 2013
	Quality of Life Technology Center Personal Robotics Lab	
	Carnegie Mellon University	
	❖ Designed custom mounted shields for the 2D scanning Hokuyo lasers using Creo Parametric	
	❖ Developed a program using Python and the ROS Python package, for the robot, HERB, to autonomously dock and charge itself	
	❖ Calibrated 2D scanning lasers	
	Research Assistant and Systems Engineering Intern	May 2015 – Present
	Field Robotics Center	
	Carnegie Mellon University	
	❖ Working in collaboration with Yamaha to build and design a self-driving all terrain vehicle	
	❖ Integrated sensors such as GPS, IMU, Velodyne 64 and Multisense S21 with vehicle	
	❖ Built a ROS-CAN driver, using C++, that listened to ROS messages and published them to the CAN network and vice versa	
	❖ Conducted system characterization tests to develop the open loop model of the vehicle, then modified and tuned the control architecture of the vehicle, via Simulink to have a better response	
	❖ Debugged and tested the system extensively to identify and fix bugs especially with the drive by wire system	
	❖ Currently designing a system for terrain recognition using computer vision and deep learning	
PROJECTS	TrashBot	Jan 2016 – May 2016
	❖ Designed and built a trash sorting robot which classified trash and sorted it into recyclable and non-recyclable bins	
	❖ Principal Power Systems Engineer and Embedded Programmer	
	EZ-Kart	Aug 2015 – May 2016
	❖ Developed and constructed an autonomous cart with the aim of aiding workers in warehouses	
	❖ Located the user wearing an April tag using a vision system and maintained a set distance in front of the user as the user moved	
	❖ Designed and built the electrical and power system as well as the controller	
	Learning Terrain Traversability Using SVMs and CNNs	Aug 2016 – Dec 2016
	❖ Created a system to segment an image into traversable, partially traversable and non-traversable regions.	
	❖ SVM- libsvm, CNN- custom CNN designed with inspiration from AlexNet	
	Autolabelling of Outdoor Terrain Images with Roughness Metric	Aug 2016 – Dec 2016
	❖ Used the IMU signal to develop a roughness metric which was used to label the path traversed by the robot	
	Left and Right Shoeprint Classification	April 2017 – May 2017
	❖ Created a VGG-like convolutional neural network to classify left and right shoeprints from a crime scene	
	❖ Programmed using Keras with Tensorflow backend and achieved 95% test accuracy	
LEADERSHIP	❖ FIRST Global Robotics- Global STEM Corps Mentor and Leader of Team Trinidad and Tobago	Jan 2017 – Present
	❖ Eta Kappa Nu- Electrical and Computer Engineering Honor Society- VP	May 2015 – May 2016
	❖ Tau Beta Pi- Engineering Honor Society	May 2015 – May 2016
	❖ Formula Society of Automotive Engineers- Director of Safety Systems	Jan 2013 – Jul 2014