

YESHAS THADIMARI

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EDUCATION

University of Pennsylvania

Master's of Science, Robotics - Current GPA 3.70/4.00

August 2019 - Present

National University of Singapore

University of California, Berkeley

Bachelor's of Engineering, Mechanical

Graduated with Honors - Final GPA: 4.20/5.00

August 2015 - June 2019

January 2018 - June 2018

COURSES & SKILLS

Programming: C/C++, Java, Python, CUDA, MATLAB, Simulink, LabView, ROS
Libraries: Tensorflow, Onnx, TensorRT, OpenCV, PCL, PyTorch
Design Software: AutoCad, Solidworks, Photoshop
Courses: Machine Learning, Optimization and Control in Robotics, Linear System Theory, Deep Learning, Model Predictive Control, Learning in Robotics

RESEARCH & PROJECTS

Class Projects (University of Pennsylvania)

August 2019 - Present

- *Semantic Edge Detection:* Combined various segmentation datasets and train a Bi-Directional Cascade Network for detection the edges of most important object.
- *Ms Pacman:* Compared various Deep Reinforcement Learning algorithms on OpenAi gym's MsPacman environment. (Graded as Best Project in Machine Learning course, CIS520)
- *Planar Biped Simulatoion:* Designed a simulation of a Planar Bipedal Robot to traverse stochastically-varying terrain. Gained familiarity with several optimal control methods and optimization methods including Model Predictive Control, LQRs and Trajectory Optimization.
- *Multi Agent System:* Involved in the assembly of various UGVs for a proposed swarm-mapping project. Helped set up the robots for multi-agent SLAM.

Advanced Robotics Centre (NUS) - Final Year Project

August 2018 - May 2019

- Developed a people-following RC-Car from scratch with ROS (Robot Operating System) by retrofitting an existing RC-Car with microcontrollers for low level control of both steering and throttle.
- Experimented with various types of camera sensors such as the ZED, Kinect v2 and Intel RealSense.
- Made use of Jetson TX2 to support deep learning algorithms such as YOLO to enable tracking of detected objects with a custom Extended Kalman-Filter written in C++ combined with the Hungarian Algorithm.

Advanced Robotics Centre (NUS) - Undergraduate Researcher

May 2018 - July 2018

- Worked on enabling teleoperation of the Denso VP-6242 Robot Arm with the Force Dimension Haptic Device.
- Created a TCP socket in C++ to allow communication between the two devices and made use of inverse kinematics to enable teleoperated-control of the robot arm.

WORK EXPERIENCE

NUS / GovTech - Co-op Engineer / Mentor

May 2020 - Present

- Trained deep learning models for image segmentation to be deployed on Boston Dynamic's Spot robot. Used the segmentation images to propagate a costmap to allow the robot to traverse safely in public environments.
- Models were deployed on embedded systems and optimized using frameworks like ONNX and TensorRT.
- Currently working on integrating a model predictive controller into the autonomous stack.
- Supported other robotics engineers at GovTech to get various parts of the autonomous stack up and running.
- Simultaneously mentored undergrad. students at NUS on a multitude of topics (Deep Learning / Robotics / ROS)

Adv. Robotics Centre (NUS) - Research Engineer & Team Lead

May 2019 - Dec 2019

- Developed an autonomous wheelchair to be deployed in the National Gallery of Singapore.
- Designed, fabricated and installed various mounts, stands and electrical boxes to store and hold the various components of the autonomous system securely in place.
- Integrated various commonly used hardware and software packages in perception, mapping, localization and path-planning: Encoders, IMUs, LIDARs, Depth Cameras, Sensor Fusion, PID Control, Google-Cartographer, etc.
- Optimized deep learning object detection methods on CUDA devices using TensorRT.

MSD - Merck, Sharp & Dohme - Technical Operations Intern

June 2017 - December 2017

- Supported the operations for two major drugs and products on the production floor and assisted in troubleshooting any issues in the manufacturing process and handling customer complaints.
- Coordinated training for technicians and staff to handle different types of machinery on the production floor.