Neet Mehulkumar Mehta

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EDUCATION

Worcester Polytechnic Institute (WPI) — **Worcester, MA**
Master of Science- Robotics Engineering, GPA- 3.83/4.00 — Dec 2022

Nirma University — **Ahmedabad, India**
Bachelors in Mechanical Engineering, GPA- 7.8/10.00 — May 2020

KEY SKILLS

- **Programming Skills**: C++, Python, MATLAB
- **Tools and Libraries**: TensorFlow, ROS, Gazebo, OpenCV, CARLA simulator, Git, Docker, Blender 3D.

WORK EXPERIENCE

TORC Robotics — **Blacksburg, VA**
Perception Engineer – Co-Op — Jan 2022 – Present

Institute for Plasma Research (IPR) — **Gandhinagar, India**
Research Intern — Jan 2020 – May 2020

- Developed a fully working model 5-DOF serial manipulator on an omnidirectional platform for inspection of Tokamak reactor that can be controlled by VR setup.

RESEARCH EXPERIENCE

Cognitive Medical Technology (COMET) Lab, WPI *C++, python* — **Worcester, MA**
Modeling the Kinematics and Dynamics of Continuum robot using Machine Learning Techniques — Sept 2021 – Dec 2021

- Developed a deep neural network to model the complex and recursive kinematics and dynamics of continuum robot.
- Develop a LWPR (Locally-weighted projection regression) model and compare time complexity of algorithm with DNN.

PROJECTS

3D Object detection in Point Cloud using Voxel-RCNN — Sept 2021 – Dec 2021
Python, Pytorch, OpenCV

- Implement a 3D detection network (VoxelNet) on KITTI vision benchmark dataset to unify feature extraction and bounding box prediction into a single stage, end-to-end trainable deep network.

Real-time object following and gesture control with NVIDIA Jetson, CNN — Sept 2021 – Dec 2021
C++, Python, Tensorflow, OpenCV

- Implement hand-gesture recognition and hand-gesture control using CNN, ROS on Nvidia JetBot.
- Implement Object following feature on Nvidia JetBot.

Real-time hand gesture recognition using SSD-MobileNet and Transfer Learning — Oct 2021– Dec 2021
Python, Tensorflow, OpenCV

- Trained object detection model consisting of 5gestures by Transfer Learning to a pre-trained SSD-MobileNet model and TensorFlow object detection API on RTX 2060 MAX-Q GPU .
- Achieved 80% accuracy for a class.
- Trained lightweight model suitable for real time hand gesture recognition.

Self-driving car simulation in CARLA simulator — Feb 2021 – May 2021
Python, CARLA

- Implemented ADAS system in CARLA simulator.
- Implemented lattice planning algorithms with Bezier curve primitive for turning the vehicle and overtaking in low traffic scenarios in the CARLA simulator using python API.
- Implemented Adaptive Cruise control (ACC) to an autonomous agent.
- Tuned the algorithm to get different curvature of the path.

Implementation and Visualization of Autonomous Robot Path Planning Algorithms — Feb 2021 – May 2021

Python

- Implemented discrete and sampling-based algorithms such as A*, Weighted A*, Dijkstra, Probabilistic Road Map(PRM), Rapidly exploring Random Tree (RRT), RRT*, and Informed RRT* to navigate through obstacles in a 2D environment.

Design and Simulation of a Quadruped Robot in different gaits and environments Feb 2021 – May 2021
SimMechanics

- Developed Kinematic and Dynamic model of the quadruped using different approaches and implemented different gaiting sequences (eg: walk, trot, gallop).
- Developed control architecture for all the legs of the quadruped.

EXTRACURRICULAR ACTIVITIES

- **Teaching Assistant:** Assisted professor in organizing two graduate-level courses in Summer ’21.
- **Publicity Volunteer:** Gathered the highest number of students from other universities for national level Tech-Fest ‘Praveg ’18.