

Neet Mehulkumar Mehta

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EDUCATION

Worcester Polytechnic Institute (WPI)

Master of Science- Robotics Engineering, GPA- 3.83/4.00

Nirma University

Bachelor's in mechanical engineering, GPA- 7.8/10.00

Worcester, MA

Dec 2022

Ahmedabad, India

May 2020

KEY SKILLS

- **Programming Skills:** C++, Python, MATLAB
- **Tools and Libraries:** Machine learning on cloud with AWS Sagemaker, AWS airflow, TensorFlow, Pytorch, TensorRT, PCL (Point Cloud Library) Docker, Git, ROS, Gazebo, OpenCV, CARLA simulator, Blender 3D.

WORK EXPERIENCE

TORC Robotics

Perception Engineer – Co-Op

C++, Python, Pytorch, AWS, TensorRT, PCL

- Perception and Deep learning

Blacksburg, VA

Jan 2022 – Present

Institute for Plasma Research (IPR)

Research Intern

- 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.

Gandhinagar, India

Jan 2020 – May 2020

RESEARCH EXPERIENCE

Cognitive Medical Technology (COMET) Lab, WPI

C++, python, MATLAB

Modeling the Kinematics and Dynamics of Continuum robot using Machine Learning Techniques

Worcester, MA

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

Python, Pytorch, OpenCV

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

Sept 2021 – Dec 2021

Real-time hand gesture recognition using SSD-MobileNet and Transfer Learning

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.

Oct 2021– Dec 2021

Real-time object following and gesture control with NVIDIA Jetson, CNN

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.

Sept 2021 – Dec 2021

Self-driving car simulation in CARLA simulator

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.

Feb 2021 – May 2021

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 (e.g.: 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.