CHARMIN PRITESH DESAI

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EDUCATION

University at Buffalo, The State University of New York (UB), USA **Aug 2021 – Dec 2022**

- Master of Science in Robotics (Robotics & Artificial Intelligence)
  Subjects: Robotics, ROS & Algorithms, Machine Learning, Computer Vision, AI, Engineering Mathematics

Sardar Vallabhbhai Patel Institute of Technology (SVIT), Gujarat, India **Aug 2016 – Aug 2020**

- Bachelor of Engineering in Instrumentation & Control (Industrial Automation)
  Subjects: PLC, Power Electronics & Drives, Industrial Measurement, Embedded Systems, Electrical Machines, Process Control

SKILLS

Languages: Python, C, C++, Embedded C, Arduino, MATLAB
Frameworks: ROS, Gazebo, SLAM, Simulink
Hardware: PLC, PID Control, Electronics & Embedded Systems
Other: Data Structures & Algorithms, NumPy, Pandas, Matplotlib, TensorFlow, Keras, scikit-learn, OpenCV, MS Office, Git

ACADEMIC PROJECTS

Path Planning using A* Algorithm (ROS) **May 2022**

- Optimized path planning from scratch using a grid map for a robot, enhanced time performance by 10%.
- Re-Invented an autonomous obstacle detection robot, improving obstacle avoidance by 20%.

Face Detection and Clustering **May 2022**

- Re-Build Face Detection based on Haar Cascade Face Detector with a dataset of hundreds of samples.
- Incorporated K-means Clustering to detect faces, resulting in F1 score > 0.81.

Wall Detection and Motion Planning (ROS) **Apr 2022**

- Coded RANSAC algorithm for obstacle detection enhancing detection rate by 25% through Laser Scanner.
- Accomplished Motion Planning with Bug2 algorithm in stage world simulator through RANSAC node.

Neural Network and CNN on Income & Fashion-MNIST Dataset **Apr 2022**

- Introduced a Neural Network for income prediction from an Income dataset of size 32500 and achieved accuracy of 85.6% by Hyperparameter Tuning for optimization.
- Built Object Recognition implementing CNN utilizing Fashion-MNIST dataset of 70000 sample images and obtained 92% accuracy.

Evader-Pursuer (ROS) **Mar 2022**

- Re-Engineered control nodes to permit pursuer robot follow evader robot reducing collision rate by 50%.
- Reconstructed broadcaster node for evader and listener node for pursuer utilizing TF1 package library.

Analysis of Fanuc Robot LR Mate 200-iD **Nov 2021**

- Standardized position coordinates of 6-DOF Manipulator's End-Effector in Base and World Frame with the help of Denavit-Hartenberg methodology.
- Derived 6x6 Jacobian Matrix by the making use of the DH Table parameters.

WORK EXPERIENCE

Grader Assistantship, University at Buffalo **Sept 2022-Present**

- Grader Assistant of Prof. Dr. Minghui Zheng in the course MAE 340 (Dynamic Systems).

Internship at Niyantras Automation **Dec 2018**

- Created a Prototype of an Indoor Air Quality Monitoring System using Arduino, MQ135, and MQ5 sensor modules for detecting particulate matter, N2O, SO2, H2, LPG, CH4, CO, and alcohol.

ACHIEVEMENTS

- **Technical Head,** Showcased 2 Automation Projects, of I&C Engg. Dept. in Prakarsh. **Feb 2019**
- **Sub-Technical Head,** Organized LABVIEW Workshop for 120 students in I&C Engg. Dept. in Aavishkar. **Sep 2018**