

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: C, C++, Embedded C, Arduino, MATLAB, Python.

Frameworks: ROS, Gazebo, SLAM, Simulink

Hardware: PLC Automation, PID Control, Electrical, Electronics, Embedded Systems, Circuit Design

Other: NumPy, Pandas, Matplotlib, TensorFlow, Keras, scikit-learn, OpenCV, Microsoft 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 using 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 comprising TF 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 using Denavit-Hartenberg methodology.
- Derived 6x6 Jacobian Matrix by the making use of the DH Table parameters.

INTERNSHIP EXPERIENCE

Tara Mechons Pvt. Ltd.

Jun 2021

- Devised Automatic Turn-Off functionality in an Electrical Cutting Machine for system and operator safety, within a team of 5 members.

Larsen and Toubro Power Training

Jun 2019

- Engaged in Training on Industrial Instrumentation & Automatic Systems (PLC, DCS, SCADA).
- Hands-on 4 major Industrial Transmitters, i.e., Temperature, Pressure, Level, Flow and Control Valves.

Niyantras Automation

Dec 2018

- Created a Prototype for an Indoor Air Quality Monitoring System using Arduino, Sensor Interfacing.

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**