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, 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

TECHNICAL SKILLS

Languages & Libraries: C, Python, NumPy, Pandas, Matplotlib, TensorFlow, Keras, scikit-learn, OpenCV
Tools & Technology: ROS, Gazebo, Rviz, SLAM, PSIM, MATLAB & Simulink, Machine Learning, Computer Vision, Linux OS, Arduino, Microsoft Office, Git
Hardware Skills: PID & Control Systems, PLC Automation, Mechatronics, Electrical, Electronics, Embedded, Circuit Design
Soft Skills: Problem Solving, Team Collaboration, Innovative, Presentable

PROJECTS EXPERIENCE

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

- Devised A* algorithm from scratch to plan a shortest path for a robot from start to goal location.
- Executed the shortest path for a grid map to reach the goal location autonomously while avoiding obstacles.

Face Detection and Clustering **May 2022**

- Implemented Face Detection through OpenCV using Haar Cascade Face Detector on a dataset composed of hundreds of images.
- Used KMeans Clustering algorithm to cluster the detected faces. Achieving an F1 score > 0.81 on the test dataset.

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

- Implemented RANSAC algorithm in Python for obstacle detection through Laser Scanner data.
- Motion Planning with Bug2 algorithm in stage world simulator, utilizing data received from RANSAC node.

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

- Built a Neural Network on Income dataset of size 32500 to predict a person's income.
  NN model accuracy of 85.6 % was achieved though Hyperparameter Tuning for optimization.
- Built a CNN on Fashion-MNIST dataset of size of 70000 images to predict the item type.
  Achieving CNN model accuracy of 92 % through Hyperparameter Tuning for optimization.

Analysis of Fanuc Robot LRMate 200-iD 6-DOF Manipulator **Sep 2021 - Dec 2021**

- Generalized the position of the tool in the Base/World Frame using the Denavit-Hartenberg Table Parameters.
- Derivation of the Jacobian Matrix by making use of the DH Table parameters.
- Analyzed singularities through concept of kinematic decoupling and derived values of joint variables in MATLAB by applying inverse kinematics on 6 DOF manipulator.

INDUSTRIAL WORK EXPERIENCE AND TRAINING

Internship at Tara Mechons Pvt. Ltd **Vadodara, India, Jun 2021**

- Developed Automatic Turn-Off functionalities in an Electrical Cutting Machine for system/operator safety.

Internship at Larsen and Toubro Ltd (L&T) **Vadodara, India, Jun 2019**

- Training on Industrial Instrumentation Systems (PLC, DCS, SCADA) and Industrial Visits.

Internship at Niyantras Automation **Vadodara, India, Dec 2018**

- Experience with Microcontroller, Linux OS, C Programming, Sensors Interfacing
- Developed Air Quality Monitoring System

LEADERSHIP EXPERIENCE

Technical Head, Teamwork in Prakarsh Tech-Fest, Showcased Automation Projects of I&C Department, SVIT **Feb 2019**
Sub-Technical Head, Teamwork in Aavishkar Tech-Fest, Organized LABVIEW Workshop, I&C Department, SVIT **Sep 2018**
Volunteered, International Society of Automation (ISA), under ISA Student Chapter of I&C Department, SVIT **2018-2019**
Volunteered, Teamwork in Workshops/Seminars on PLC, Control Valves, SPI Intool of I&C Department, SVIT **2018-2019**