Shantanu Suhas Parab

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EDUCATION

University of Maryland, A. James Clark School of Engineering — Aug 2022 – May 2024

Master of Science, Robotics - CGPA - 4.0/4.0 — College Park, US

- Robot Planning and Modeling, Autonomous Robotics, Planning for Autonomous Robots
- Perception for Autonomous Robots, Robot Control System, Software Engineering for Robotics

Fr. Conceicao Rodrigues College of Engineering, Mumbai University — Aug 2017 – May 2021

Bachelor of Engineering, Electronics Engineering - CGPA - 3.65/4.0 — Mumbai, India

- Participated in the E-Yantra robotics competition to design and path-planning algorithm for a drone from scratch and simulated its behavior in Gazebo

SKILLS

C++, ROS, ROS2, MATLAB, Python, RVIZ, GIT Version Control, OpenCV, Solidworks, Microcontrollers, Java, SQL.

EXPERIENCE

Accenture Solutions Private Limited — Jul 2021– Jul 2022

Associate Software Engineer — Mumbai, Maharashtra, India

- Improvised an existing code for extracting data from the supplier end.Debugged the code responsible for frequent failures because of overlooked corner cases, found the root cause, and fixed the code.
- Reduced the overall number of tickets on the existing application by 87%, with a considerable drop of 800 tickets to under 100 per month.

PROJECTS

Rescue Robots | ROS, MATLAB, Image Processing, SLAM, Path Planning — January 2023

- Implemented SLAM mapping and Path Planning algorithm on TurtleBot3 and simulated the results in Gazebo.
- Utilized Robot Navigation, Image Processing, and ROS toolbox in MATLAB to implement the algorithm and establish communication with remote simulation environment over wireless network.
- Mapped obstacles and localized humans in the environment simultaneously and stored information as an occupancy map, which was then fed into an RRT Path Planner to get the optimal path toward the human.

Swarm Robot ROS2 | C++, ROS2, CMake, GitCI — Nov 2022-Dec 2022

- Simulated a swarm of 20+ robots to form geometric patterns on a clear field.
- Used Gazebo to simulate the robot behavior and C++ along with ROS2 to program the robots.
- Used best software development practices to maintain continuous integration and version control.

Control of Non-Linear System | Matlab, Control Theory — Dec 2022

- Linearized a two-pendulum cart non-linear system using Jacobian Linearization, to comment on the controllability and Observability of the system.
- Integrated an LQR and LQG controller into it to improve the output response and compare the two.
- Developed a Luenberger Observer for the system to estimate the state of the system.

Human Object Detection | Software Development, OpenCV, C++ — Oct 2022-Nov 2022

- Developed a Human Object detection program to be integrated into a mobile robot.
- Used the AIP(Agile Iterative Process) and TDD(Team Driven Development) to develop the project.
- Focused on the software development aspect of the project by making use of Version Control, Sprint Planning, and Backlog Tracking.

Trajectory Design for Panda Robot | Robot Modelling, Python — Oct 2022-Nov 2022

- Derived the transformations for the robot manipulator using the Denavit-Hartenberg Method.
- Designed the trajectory for a 7-link robot manipulator (Panda) to draw a circle in 3D space using Jacobian, Inverse, and Forward Kinematics.

LEADERSHIP EXPERIENCE

Robocon CRCE | Team Lead — Jun 2019– Jun 2020

* Led a team of undergraduates in a National Level robotic competition to secure 11th place.

Rotaract Club | Volunteer — March 2020

* Assisted the Food and Hospitality team with kitchen services and served over 650 participants during a city charity marathon organized by the Rotaract Club, a wing of the Rotary international.