



Archit Hardikar

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 LinkedIn |  GitHub |  Portfolio

EDUCATION

University of Pennsylvania

Masters of Science in Applied Mechanics (Robotics)

Philadelphia, USA

Aug 2021 - May 2023

University of Pune

Bachelor of Technology in Mechanical Engineering; GPA: 4.00/4.00

Pune, India

May 2016 - Aug 2020

EXPERIENCE

University of Pennsylvania

Graduate Research Assistant

Philadelphia, USA

Feb 2022 - April 2022

Eaton India Innovation Center LLC, Aerospace Department

Associate Requirements Engineer, SDE

Pune, India

Dec 2020 - Aug 2021

- Contribution to two Intellectual Property (IP) disclosures, a Research Paper and a Trade Secret.
- Implemented digitization tool for scanned Engineering Drawings to database digitization. NLP, data clustering and segmentation. Profile analysis using computer vision opencv. (80% TAT reduction, 80,000\$ annual savings).
- Developed Graphical User Interface for a smart hose directory search tool.
- Developed a requirements assessment tool for data validation using semantic textual similarity, NLP. (50% TAT reduction, estimated 180,000\$ annual saving).
- Other responsibilities: Requirements capture, analysis, validation and assessment for global Aerospace companies. Successfully handled Requirements Report (100% On Time Delivery and 100% First Pass Yield).

Mercedes Benz India Ltd.

Project Trainee

Pune, India

June 2019 - Dec 2019

- Skills developed: 6-axis robot, Kaizen (Continuous improvement), Macros, VBA.
- Programmed 6-axis KUKA robots in paint shop, body assembly shop.
- Implemented line setup and line balancing for 5 new cars/ models. Kaizen for 20% cycle time reduction- overhead glass gluing station. (50,000\$ yearly savings).
- Created an Automation Tool for a Calibration Alert System using Excel VBA macros and access database.

PROJECTS

Instantaneous Motion Planning using RRT, RRT*

- Implemented Rapidly Exploring Random Tree (RRT) and RRT* for local path planning. Localization using Adaptive Monte Carlo (AMCL) Particle Filter. Hector Odometry for 2D map generation and Pure Pursuit along spline for close loop circuit racing. Programming in C++, ROS2, bash shell.

SLAM (Simultaneous Localization and Mapping) and Particle Filter

- Demonstrated Point to Line Iterative Close Point scan match on occupancy grid map using C++. Particle Filter for state estimation and map localization. Pure pursuit for Spline path in Python ROS2 node.

Autonomous Racing Reactive Navigation

- Implemented Obstacle avoidance using Hokuyu 2D LIDAR scan data. Reactive navigation in close loop path using ROS2 and C++. Wall follow and Follow-The-Gap algorithm.

Road image object detection using computer vision (YOLO)

- Computer Vision using cv2, opencv- Road car detection using convolutional neural networks and autoencoders. Non-maximum suppression and sliding window for bounding boxes. Achieved 0.86 test accuracy. Implemented lane detection and Camera calibration, distance calculation.

Autonomous Battle Robot for GTA-2021 competition (UPenn)

- Designed and built an autonomous wall following robot. Localization using HTC Vive in C. Obstacle detection, frequency detection and wall following.

SKILLS

Programming: ROS, ROS2, Python, C++, MATLAB, C, Bash Script, Linux, Docker

Technologies: Git, Arduino, Simulink, Ansys, Solidworks

Languages: English (Professional), German (Limited), Marathi (Native), Hindi (Native), Sanskrit (Limited)

CERTIFICATES

Neural Networks and Deep Learning, DeepLearning.AI | *Credential*

Machine Learning, Stanford Online | *Credential*