

Ashutosh "Ash" Panpalia

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Career Objective: Result driven Robotics engineer specialized in robot manipulation, autonomous mobility platform, and perception pipelines. Leveraging 4 years of work experience to drive innovation in robotics.

Skills:

Robotics Software: Python, PyBullet, PyTorch, ROS 2, Nvidia Isaac Sim, Isaac Lab, Rviz, Gazebo, SLAM, Nav2, OpenCV

Control system: Classical control, PID, MPC, DQN, A2C, PPO, DDPG, Path Planning, Sensor Fusion

Equipment Expertise: Robotic arms, High-speed cameras, 3-D cameras, Tactile sensors, IMU sensors, Lidars, GPS

Work Experience:

Robotics Engineer, Zoho Corporation US

Oct 2024 - current

- Developed RL-based control pipelines in PyBullet, using reward-shaping techniques to train pick-and-place policies that achieved 83% sim2real transfer success on a Trossen Robotics 6-DOF arm.
- Set up the Isaac Lab locomotion environment for Unitree Go2 quadruped robot, defining observation/action spaces and physics-accurate walking tasks.
- Implemented a LiDAR-based autonomous navigation pipeline in Isaac Sim, integrating ROS 2 SLAM Toolbox for mapping and Nav2 for end-to-end navigation (simulation-only).
- Implemented ROS 2 navigation stack for AMR to autonomously deliver food and drinks in the office.
- Deployed citrus fruit counting pipeline using fine tuned YOLO perception model and DeepSORT algorithm.

Research Assistant, EMNM Lab - University at Buffalo PI: Dr Jun Liu

Sept 2023 - Aug 2024

- Developed closed loop position control system for 16 DOF articulated robot gripper by integrating tactile sensors
- Designed evaluation pipeline to access performance of the tactile sensors developed in the lab
- Integrated motors, tactile sensors, force sensor and data acquisition system for control system deployment.
- Investigated model free RL policies to develop control strategies for 16 DOF robot gripper.

Research Engineer, Machine Tool Dynamics Lab, IIT Kanpur PI: Dr Mohit Law

Feb 2023-July 2023

- Developed experimental framework to conduct system identification of 6-DOF industrial robotic arm.
- Executed 27 pilot experiments for dynamic system identification by employing modal analysis techniques.
- Designed control strategy for 2-axis linear stage to reduce robotic machining dimensional error by 10%.
- Utilized insights from modal analysis of robotic arm to design robust control system for improved path tracking.

Assistant Manager QA Hero MotoCorp Ltd.

Aug 2020-Jan 2023

- Implemented AI-powered vehicle inspection using perception model on production lines to enhance quality..
- Conducted tolerance stack-up analysis to identify and resolve critical 0.1mm fitment issue of export accessories
- Attained 125% Plant Level Kaizen by collaborating and encouraging cross-functional teams
- Integrated cameras and ultrasonic sensors on 4 conveyors with collaboration of all teams to enhance traceability, mitigate workplace hazards, and alleviate human fatigue

Relevant Projects:

Indoor Autonomous Mobile Robot (Isaac Sim + ROS 2)

Oct 2025-current

- Developed a LiDAR-based indoor autonomous mobile robot, using Isaac Sim and deploying on real hardware.
- Integrated sensor fusion pipelines combining onboard sensors for odometry and localization.

Autonomous Vehicle, Planning and Control

Aug 2024-Dec 2024

- Developed ROS-based motion planning algorithms using Pure pursuit and RRT for autonomous vehicle navigation.
- Implemented PID controller for steering in autonomous vehicles to achieve robust vehicle trajectory control.

Surface Finish measurement with AI

Aug 2019-Jun 2020

- Constructed multivariate polynomial regression prediction model with R-squared value > 0.8 & MAPE <15% to accurately forecast surface roughness of the workpiece.

Modular Robotic Arm Development for Martian Rover

Jul 2018-Feb 2019

- Implemented control system strategy for 5-DOF robotic arm using inverse kinematics for motion control.
- Engineered 5-DOF robotic arm, with lifting capacity of 3 Kg and reach of 1m utilizing first principle design approach.

Education

M.S: Robotics Engineering, University at Buffalo, SUNY, New York, USA (GPA: 3.78/4)

B.Tech: Mechanical Engineering, Delhi Technological University, New Delhi, India (CGPA: 8.85/10)

Leadership Experience

- Currently leading coordination between USA and India Zoho R&D robotics teams to streamline multiple projects.
- Mentored 35 underprivileged students in India for 200+hrs covering basics of Python coding, virtual mentoring.