

SHREY SHAH

shreyzz@umich.edu | [LinkedIn](#) | [GitHub](#) | +1 734 489 4206

EDUCATION

University of Michigan, Ann Arbor	Aug 2023 - April 2025 (Expected)
Master of Science, Robotics (Specialization - Computer vision)	
Courses - Foundations of Computer Vision, 3D Robot Perception, Math for Robotics, Robotics Systems lab	
Institute of Technology, Nirma University	July 2019 - June 2023
Bachelor of Technology, Mechanical Engineering	GPA - 3.93/4
Minor Specialization, Computer Science	GPA - 3.9/4

SKILLS

Programming:	Python, C/C++, R, MatLab, SQL plus
Tools:	ROS, Gazebo, CoppeliaSim, LaTeX, Creo, SolidWorks, Git, Rviz
Libraries:	OpenCV, numpy, SKlearn, Tensorflow, pandas, Matplotlib, pytorch

WORK EXPERIENCE

Indian Space Research Organization (ISRO) <i>Controls Research Intern</i>	June '22 - May '23
<ul style="list-style-type: none">Designed a Dual-motion actuator capable of coarse and fine movement with a fine resolution of 4 nm.Implemented Adaptive-Proportional control system for the operation of a single actuator.Integrated 6 actuators to act as a Hexapod System controlling 6 DOF required for the application.Designed a web GUI for controlling all actuators using CSS.	
Reliance Industries Limited <i>Vocational trainee</i>	June '21 - July '21
<ul style="list-style-type: none">Design and Stress analysis of thermal equipment using Ansys and PVelite.Quality and reliability checking of turbines and centrifugal pumps.	

PROJECTS

PointNet classification and 3D reconstruction (Aug - Oct '23)	<i>3D perception, pytorch, PointNets, openCV</i>
<ul style="list-style-type: none">Calculated epipolar correspondences to generate point clouds from different views.Implemented ICP for rigid transformation and matching different views of same point clouds.Implemented PointNet architecture to classify different 3D representations and identify specific parts of PCs	
Armlab (Robotics systems laboratory project) (Aug - Oct '23)	<i>computer vision, ROS, Rviz, openCV</i>
<ul style="list-style-type: none">Built a computer vision pipeline, implemented forward kinematics, and programmed the UI for a robot arm to autonomously pick, sort and stack a colored set of blocks of multiple sizesThe computer vision pipeline self-calibrates the camera's extrinsic matrix, detects workspace boundaries, and gathers contour/color data for planning algorithms. Secured 1st place in 2 of 4 final lab competitions.	
Vision Implementation on UR10e (Aug - Dec '22)	<i>Machine vision, ROS, Gazebo, Matlab</i>
<ul style="list-style-type: none">Extracted position and orientation of objects using circularity and contour detection referenced by markers.Implementation of 2-view stereo and multi-view stereo vision for location.Performed Forward and Inverse Kinematics for joint angles of the cobot using the Jacobian matrix.Measured extrinsic matrix for converting world coordinates to image frame.	
Path optimization of a snake Robot (Aug - Dec '22)	<i>Design, SLAM, Image processing</i>
<ul style="list-style-type: none">Fixed the Design of a used snake robot, improving circuits and employed PWM controller.Movement by a sine wave in servomotors instilling phase offsets with set amplitude and frequency.Path planning and optimization using SLAM and image processing from an initial viewpoint.	
Predicting Abnormalities using biomechanical features (Mar - May '22)	<i>Machine Learning</i>
<ul style="list-style-type: none">Classified Patient's disease using various models - Random forest, KNN and Support vector machine.Extracted key features affecting the patient and achieved an accuracy of 96% by SVM.	