FNU Koustubh

College Park, Maryland, USA

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EDUCATION

University of Maryland, College-Park May 2025
Master of Engineering in Robotics *GPA: 3.8/4.0*

Courses: Autonomous Unmanned Aerial Vehicles(UAVs), Object-Oriented Programming, Path Planning, Robot Perception, Manufacturing and Automation, Software Development, Deep Learning and AI

Institute of Engineering and Technology, Lucknow (Affiliated to AKTU, Lucknow) August 2021
Bachelor of Technology in Electrical Engineering *GPA: 8.0/10.0*

Courses: Control Systems, Embedded Systems, Power Systems, Electrical Machines, Engineering Mathematics

PROJECTS

UAV-Based 3D Reconstruction with MASt3R | *PX4 Autopilot, VOXL, ROS2, Python, C++, OpenCV, SFM*

- Developed an optimized UAV image acquisition pipeline using MASt3R for 3D reconstruction, reducing data redundancy by 60% while maintaining model quality; integrated with PX4, ROS2, and VOXL SDK for real-time onboard capture and telemetry.
- Containerized the pipeline with Docker and deployed it on AWS EC2 for scalable, reproducible 3D model generation from aerial imagery.

Early Detection of Autism in children using AI | *Neural Networks, TensorFlow, Keras*

- Developed a neural network to detect autism in children using eye-tracking data by analyzing eye movement patterns during visual stimuli aiming to improve early diagnosis and intervention.
- Achieved a significant improvement over the baseline accuracy of 79.14 %, reaching over 87.8% accuracy in classifying autism using eye-tracking data, with a recall of 89.89 % .

Autonomous TurtleBot3 Navigation using Visual Cues | *ROS2, Python, C++, OpenCV*

- Developed and deployed a ROS2 package for autonomous navigation, incorporating horizon detection and optical flow for enhanced perception, along with YOLOv8-based stop sign detection.
- Successfully implemented the system in Gazebo simulation and TurtleBot3 hardware, demonstrating adaptive path tracking, real-time obstacle avoidance, and automated stop sign recognition in a controlled testing arena.

EXPERIENCE

Maryland Applied Graduate Engineering, UMD College Park | *Grading Assistant* Aug. 2024 – May 2025
- Evaluating assignments and projects for ENPM662: Introduction to Robot Modeling and ENPM661: Planning for Autonomous Robots.
- Developed structured grading rubrics ensuring fair evaluation and constructive feedback for student learning.

Tata Consultancy Services | *Assistant Systems Engineer* Oct. 2021 – Aug. 2023
- Managed the e-commerce platform of a fashion brand using Salesforce Commerce Cloud and Splunk monitoring, improving uptime and performance.
- Reduced MTTR by 65% through proactive issue resolution and automated monitoring strategies.
- Recognized with "Best Team Award" for outstanding performance and contribution to the project.

Indian Institute of Technology, Bombay | *Research Intern* May 2020 – June 2020
- Developed educational content for Mobile Robotics MOOCs, impacting over 500 students globally by integrating practical simulations and coding exercises in technologies such as ROS, SLAM and path planning.
- Enhanced organizational outreach by actively contacting South African and Namibian university students to promote participation in the eYantra Robotics Competition and designing the eYantra yearbook.

SKILLS

Languages: C++, Python, Bash, MATLAB
Robotics: Robot Operating System(ROS), Gazebo, SLAM, MoveIt, Navigation Stack, PX4 Autopilot, SolidWorks
AI, Machine Learning and Computer Vision: PyTorch, TensorFlow, Keras, OpenCV, YOLOv8
DevOps & Cloud: Linux, Docker, AWS EC2, Git, Unix Shell, Salesforce Commerce Cloud, Splunk, CI/CD