

Anubhav Vishwakarma

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OBJECTIVE STATEMENT:

Robotics graduate student seeking an internship position. Expertise Intersection: Motion Planning, Imitation Learning, and Reinforcement Learning. **Graduating: December 2026**

EDUCATION

• University of Washington, Seattle, USA

Master of Science (MS) in Mechanical Engineering (**Concentration Robotics**); **GPA: 3.82/4.0** Sep 2024 – Present
Coursework: Reinforcement and Machine Learning, Control for Safe Interactive Autonomy, and CUDA.

• M. S. Ramaiah Institute of Technology, Bangalore, India

Bachelor of Engineering (BE) in Mechanical Engineering; **GPA: 9.36/10.0** Aug 2018 – Aug 2022
Coursework: Control Engineering, Computational Numerical Methods, Kinematics and Dynamics of Machines.

PUBLICATIONS

- T. Han, ..., **A. Vishwakarma**, ..., B. Boots, “*Model Predictive Adversarial Imitation Learning for Planning from Observation (MPAIL)*,” **Best Paper Runner UP** at CoRL 2025, [arXiv].
- K. Jyothish, **A. Vishwakarma***, S. Keshri*, S. Mishra “*Multimodal two-wheeler driving dataset for autonomous driving applications*,” [Discover Robotics](#)

EXPERIENCE

• Model Predictive Adversarial Imitation Learning (MPAIL)

Mar 2025 – Present

Research Assistant, Robot Learning Lab, University of Washington, Seattle

[Video](#)

- Built a local terrain map from exteroceptive sensing to provide terrain-dependent cost evaluations for MPPI rollouts.
- Integrated formal safety guarantees in Adversarial Imitation Learning (**AIL**) algorithms increasing policy and planning (**MPPI**) robustness, as validated in the **ISAAC LAB Simulation** and real world experiments.
- Evaluated **MPAIL**, **AIL** and **IRL** (Inverse Reinforcement Learning) algorithms by conducting **Sim2Real** experiments on the 1/10 th autonomous racing car platform (**Mushr**), demonstrating that planning with learned cost and value functions from expert data outperforms AIL, and IRL baselines by **69%**.

• 3D Reconstruction of Archaeological Sites, **Project Tirtha**:

Feb 2024 – Jul 2024

Research Scholar, National Institute of Science Education and Research, India

- Integrated a **3D Gaussian Splatting** pipeline and built a containerized 3D scene generation environment using Docker for cross-device reproducibility.

• GPS Denied Navigation of Micro UAV

Jul 2022 – Jan 2024

UAV Systems Engineer, UAVIO Labs, Indian Institute of Science, India

[Video](#)

- Built an autonomy stack leveraging ROS to synthesize information from multiple sensors for downstream tasks such as pose estimation using visual-inertial odometry, and object character recognition, collision avoidance and waypoint-navigation.
- Integrated 1D LiDAR, barometric altimeter, ToF sensors, stereo and monocular cameras to optimize drone autonomy performance with fail-safe redundancy by 40%.

PROJECTS

• Model Predictive Path Integral Control with Discrete Control Barrier Functions

[Report](#)

- Developed a sampling-based MPPI controller with discrete CBFs for quadrotor obstacle avoidance
- Parallelized rollouts computation with **JAX**, and benchmarked it against an LQR controller with safety constraints.

• Dynamics Model Learning for Model Predictive Control

[Report](#)

- Improved MPPI goal-reaching success from **41% to 74%** by reducing the epistemic uncertainty of learned dynamics model by using ensemble-based approach.

SKILLS

Frameworks: PyTorch, Isaac Sim and Lab, ROS, JAX, MuJoCo, Gazebo, Linux, Docker, Git

Programming Languages: Python, C++, MATLAB, C.

Hardware: MuSHR, Jetson Xavier-NX, Intel NUC, RealSense Tracking and Depth Cameras.

ACHIEVEMENTS

- Led the team to **The SAE Aero Design West 2022 Competition** - achieved **2nd place** internationally in Design among 43 teams from leading global institutions. [Video, Award](#)
- **Top 2 %** in the national level exam on Aircraft Design by NPTEL in India.