

ADITYA NAIR

☎ (773)-956-4720 | ✉ AdityaNair2024@u.northwestern.edu | in [linkedin.com/in/aditya-nair-robotics/](https://www.linkedin.com/in/aditya-nair-robotics/) | 🎧 GogiPuttar

PORTFOLIO: 🌐 <https://adityanairs.website/> | **YouTube:** 📺 @AdityaNairBuilds

EDUCATION

Northwestern University, Evanston, Illinois

Sep 2023 - Dec 2024

Master of Science - Robotics

Birla Institute of Technology and Science, Pilani, India

Bachelor of Engineering - Mechanical Engineering

PROFESSIONAL EXPERIENCE

Aurigo Aviation Technology, Cincinnati OH

Feb 2025 - Present

Software Engineer - Autonomous Driving

- ▶ Developing and deploying an **L4** autonomous truck for lifting and carrying cargo at the Cincinnati International Airport, through software integration, motion planning and machine learning, using C++, Python and ROS.

HEBI Robotics, Pittsburgh PA

June 2024 - Sep 2024

Robotics Software Engineer Intern

- ▶ Developed key features and significantly improved cross-language compatibility for robot arm trajectory planning, state estimation and sensor fusion APIs; in C++, Python, MATLAB, and ROS2 through various enhancements to the CI/CD pipeline. **Every improvement is now a part of the main production pipeline.**
- ▶ Responsible for identifying and resolving critical bugs in C++, Python, MATLAB, ROS2, C, and Java APIs, which significantly improved system stability and functionality.

National University of Singapore - The Port of Singapore Authority

Aug 2022 - Aug 2023

Robotics Software Engineer

- ▶ Invented a novel optimal torque-control planner in Python for hexapod robots, for payload transport.
- ▶ Developed Python Libraries for 6-DoF body-pose control of legged robots, using PyBullet.

Robotics Research Center, IIIT Hyderabad

May 2022 - Aug 2022

Research Engineer - I

- ▶ Implemented a Model-Predictive Controller for non-prehensile pushing using a Turtlebot in PyBullet.
- ▶ Designed and tested under-actuated perching mechanisms on drones for power line inspection.

FEATURED PROJECTS

Data-Driven Control of an Agile Bio-Mimetic Aerial Robot

Apr 2024 - Dec 2024

- ▶ Developed control strategies for a bird-like robot using an OptiTrack motion capture system, in ROS2/Python.

Multi-Agent Reinforcement Learning simulation environment from scratch

Apr 2024 - June 2024

- ▶ Built an end-to-end physically accurate training pipeline for Multi-Agent Exploration in ROS2.

Fully Autonomous Search-and-Rescue with a Robot Dog

Jan 2024 - Mar 2024

- ▶ 3D visual SLAM and outdoor frontier exploration on Unitree Go1 and Zed 2i in ROS2, C++, and Python.

Dexterous Manipulation with Shadow-Hands through Virtual Reality

Oct 2023 - Nov 2023

- ▶ Developed a ROS2 pipeline in a team of 5 for teleoperation of a humanoid robot avatar with haptic feedback.
- ▶ Created custom Python wrappers for the MoveIt2 API, and for position control in Gazebo.

EKF SLAM pipeline in C++ from scratch

Jan 2024 - Mar 2024

- ▶ Programmed a complete ROS2 pipeline in C++ for SLAM on a Turtlebot, from scratch.

Navigation and Kalman Filter Localization of Self Driving Car

Nov 2023 - Dec 2023

- ▶ Simulated an autonomous car with waypoint navigation, localization, sensor fusion, and A* path planning.

TECHNICAL SKILLS

Programming

C++ (8+ years), CMake, Python, Git, Linux, Unit Testing, Bash, Docker, Java, Lua

Computer Vision

Visual SLAM, Feature Extraction, Object Detection, Segmentation, Deep Learning

Simulation

Gazebo, MuJoCo, PyBullet, CoppeliaSim, Webots, Simulink, ANSYS, Fusion360, Blender

ROS/ROS2 Packages

Nav2, SLAM_Toolbox, MoveIt2, TF2, AprilTag, RealSense2, Isaac ROS

Hardware

NVIDIA GPUs & Jetson, Unitree, Embedded C, RaspberryPi, Teensy, PIC32, Franka