Aditya Patil

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Summary

Robotics graduate student at NYU Tandon, blending Mechanical Engineering and IoT expertise. Experienced in SLAM, ROS2, and computer vision, with hands-on success in autonomous systems, IoT monitoring, and CV projects. Delivers data-driven solutions that optimize performance and reliability.

Education

New York University, Tandon School of Engineering — Brooklyn, NY
M.S., Mechatronics (Robotics track) — Sep 2025 – Present
Coursework: Robotics Systems, ROS2 & Navigation, Machine Learning, Computer Vision, Advanced Control

Symbiosis Institute of Technology — Pune, India
B.Tech, Mechanical Engineering; Minor: IoT & Smart Manufacturing — Jul 2021 – Jun 2025
First Class Honors
Coursework: Thermodynamics, Heat Transfer, Mechatronics, IoT Systems, Data Structures (Java), AI

Experience & Leadership

Research Intern, WaterApp.In — Jan 2025 – Aug 2025

- Improved autonomous navigation path accuracy by 20% by developing a full ROS2-based navigation stack.
- Deployed a functional prototype on Raspberry Pi and ESP32 by integrating high-torque motors and EKF-based sensor fusion.

Intern, Mahindra & Mahindra — CAE Dept. — Jun 2024 – Jul 2024

- Reduced weld validation time by 40% by automating direction, length, and thickness checks in HyperMesh using Python API.
- Improved workflow reliability by standardizing preprocessing scripts and reducing manual errors.

Technical Co-Head, MESA — Aug 2022 – May 2023

- Increased student engagement by 40% by planning and executing multiple technical events.
- Ensured department success in college technical fest by efficiently coordinating events and volunteer teams.

Projects & Research

SLAM-Based Autonomous Navigation Robot — Jan 2025 – Aug 2025

- Increased navigation path accuracy by 20% by implementing ROS2-based mapping, localization, and planning modules.
- Deployed fully functional prototype on Raspberry Pi and ESP32 by integrating high-torque motors with EKF sensor fusion.

Indoor Air Quality Monitoring — IoT — Jun 2024 – Nov 2024

- Achieved 85% predictive accuracy by designing ESP32 sensor system with MQ-135, ZPH02, and BME280 and applying predictive analytics.
- Enabled real-time monitoring dashboards by integrating sensors and automating data logging pipelines.

HyperMesh Automation — Python API — Jun 2024 – Jul 2024

- Reduced weld validation time by 40% by automating direction, length, and thickness checks in HyperMesh.
- Improved CAE workflow reliability by standardizing preprocessing scripts and reducing manual intervention.

PV Panel Fault Detection — CV — Jul 2023 – Nov 2023

- Increased defect detection accuracy to 90% by building an OpenCV pipeline for cracks, hotspots, and discoloration.
- Reduced inspection time by 35% through ML model training and automated analysis.

Skills

Programming: Python, C++, MATLAB, Bash, Git
Robotics/Sim: ROS2, Nav2, Gazebo, SLAM, EKF, Sensor Fusion
IoT/Embedded: ESP32/8266, Real-time Data, Sensor Integration
CV/ML/Data: OpenCV, Image Processing, Predictive Modeling, Data Wrangling
CAD/CAE: CATIA V5, ANSYS, HyperMesh Automation

Certifications

Deep Learning: CNNs in Python (2024) | ROS2 (2025) | Nav2 (2025) | Gazebo (2025)