

RONISH NADAR

📍 New York, NY ◊ +1 (718) 930-8963 ◊ 📩 rn2669@nyu.edu ◊ ⚡ GitHub ◊ 💬 LinkedIn ◊ 🌐 Portfolio

SUMMARY

Robotics / embedded engineer (NYU M.S. Mechatronics and Robotics) building autonomous systems across perception, planning, and control. Experienced with ROS 2, firmware, sensor fusion, and real-time integration for robotics deployments.

SKILLS

Languages:	C, C++, Python, MATLAB
Robotics:	ROS 2, SLAM, A*/RRT*, Nav stacks, Pure Pursuit, PID/LQR/MPC, System Identification
Perception/AI:	OpenCV, YOLO, ArUco/AprilTag, VLM/LLM integration, PyTorch
Embedded:	STM32/ESP32/RPi/Jetson; UART/I ² C/SPI/CAN/RS485; Wi-Fi/BLE/LoRa; PCB (Altium/KiCad/Eagle)

EXPERIENCE

Graduate Research Assistant – NYU Mechatronics Lab <i>Embodied AI for multi-robot autonomy (LLM/VLM + planning + control)</i>	Jun 2025 – Present New York, NY
<ul style="list-style-type: none">Engineered zero-code LLM/VLM pipeline with GUI for high-level reasoning and task execution (pick/place, sorting).Produced a full autonomy stack: multi-camera perception → RRT* (online replanning) → Pure Pursuit/PID for precision docking.Demonstrated real-robot experiments across multi-robot task coordination; orchestrated a ZeroMQ/CBOR RPC layer with multi-comm bridge (Wi-Fi/BLE/ESP-NOW) for low-latency control.	
Graduate Teaching Assistant – NYU Tandon, MAE Department <i>Automatic Controls & Mechatronics Laboratories</i>	Sep 2025 – Present New York, NY
<ul style="list-style-type: none">Redesigned Automatic Controls curriculum; crafted Arduino experiments for real-time PID/LQR and system ID.Headed Mechatronics lab support for embedded bring-up, sensors/actuators, and discrete-time feedback control.	
Embedded Systems Engineer – Utopia Tech (EazyIot) <i>IoT Energy Monitoring Systems</i>	Jul 2023 – Jul 2024 Mumbai, India
<ul style="list-style-type: none">Shipped production firmware and designed PCB for IoT devices deployed at 10,000+ units; minimized device downtime by ~17%.Built automated factory test jigs, cutting validation cycle from 14 days to 3 days (4.6× throughput).Programmed STM32/ESP32 communication stacks and HMI for field configuration and diagnostics.	

EDUCATION

New York University, Tandon School of Engineering <i>M.S. Mechatronics & Robotics</i> ◊ GPA: 3.917	2024 – 2026 New York, NY
University of Mumbai <i>B.E. Electronics & Telecommunications</i> ◊ GPA: 3.8	2019 – 2023 Mumbai, India

PROJECTS

Dual Track Ackermann Drive Simulation + Control (Hybrid A* / SMC)	Sep 2025 – Dec 2025
<ul style="list-style-type: none">Modeled double-track Ackermann dynamics and executed SMC tracking for curvature-constrained paths; diminished tracking error by 35% compared to baseline PID.Validated Hybrid A* planning + closed-loop tracking in obstacle scenarios; improved success rate by 40% while enforcing steering/torque constraints at 100 Hz.	
Mapping Robot: SONAR Point Cloud + ROS 2 Visualization	Sep 2024 – Dec 2024
<ul style="list-style-type: none">Fabricated an ESP32 Micro-ROS pipeline streaming sensor data to ROS 2 at 50 Hz; increased map update stability by 45% and visualized point clouds in RViz.Synthesized IMU + encoder fusion for pose estimation and slashed pub/sub latency by 25%.	
TATA Power: 110 kV Insulator Cleaning Robot	Aug 2022 – Jan 2023
<ul style="list-style-type: none">Spearheaded a 4-DoF SCARA manipulator for 110 kV environments; formulated IK and motion planning achieving ± 8 mm precision.Architected EMI-hardened hardware using optocouplers and Faraday shielding that mitigated diagnostic downtime by 50% via distributed firmware.Integrated IR thermography for hotspot detection and OpenCV for line-following; cut inspection time by 3× and improved consistency by 65%.	