Akanksha Murali

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Education

New York University, Tandon School of Engineering - New York *May 2025*
Master of Science in Mechatronics, Robotics and Automation Engineering
Relevant Coursework: Deep Learning & Robot Perception, Reinforcement Learning & Optimal Control for Robotics

PES University- Bangalore, India *May 2023*
Bachelor of Technology in Electronics and Electrical Engineering
Relevant Coursework: Control Systems, Digital Image Processing, Neural Networks & Fuzzy Logic Systems

Technical Skills

Automation & Control Systems: PLC Programming (Ladder Logic), HMI, SCADA, Modbus
Programming & Embedded Systems: Python, C++, C, Java, SQL, Linux Bash, MATLAB, Arduino, RPi, ESP32, Jetson
System Design & Tuning: PID Tuning, Motion Planning, Kalman Filtering, MPC, Feedback Loops
Industrial Hardware & Integration: Motor Control, Actuators, Sensors, PCB Design, Electrical Wiring, Relay Logic
Robotics & Embedded Systems: ROS2, Sensor Fusion, Motion Planning, Embedded Firmware
Simulation & Design Tools: Unity, Blender, Innventor, Fusion 360, Gazebo, NumPy, Pandas, Git, Scikit-learn
Tools & Others: OpenCV, TensorFlow, Git, Jira, LabVIEW, LPKF CircuitPro, KiCad, Overleaf

Relevent Experience

ModeliCon Infotech | Machine Learning & Simulation Engineer | Bangalore, India *Aug 2022 - Jun 2023*
- Developed a **digital twin simulation** of an **industrial robotic cell** using **Unity & Python** to optimize assembly line efficiency
- Automated a workflow control with **PLC logic integration** and interfacing for **real-time process validation**
- Collaborated on **predictive maintenance** pipelines using sensor data and **ML models** to reduce unplanned downtime

Nivetti Systems | Robotics & Automation Intern | Bangalore, India *Jan 2022 - Jul 2022*
- Integrated a **ROS2-based 3D vision system** for **object avoidance** using **depth cameras** on a **6-DOF robotic arm**
- Enhanced **trajectory generation algorithms** improving **motion precision** and **pick & place accuracy by 20%**

Equinox PESU | Project Lead | Bengaluru, India *Mar 2021 - Jun 2021*
- Led an **8-member engineering team** in designing a **deployable rover** with **FPGA-driven automation & terrain adaptation**
- Applied **autonomous path planning** (Dijkstra's) and sensor fusion for navigation on rugged terrain
- Orchestrated cross-functional collaboration across hardware and software teams for integrated delivery

Academic Projects

Hexapod | NYU Capstone Project | New York *Fall 2024 - Spring 2024*
- Developed a **6-legged walking platform** using **MPC and distributed PID systems**
- Implemented **visual-inertial SLAM** using **stereo vision** and **IMU**, enhancing **localization robustness**
- Fabricated a **custom PCB** for power distribution and multi-joint control signal synchronization

Robotic Arm for Mobile Payload Carrier | PES Capstone Project | Bangalore, India *Spring 2023*
- Designed a **multi-floor delivery robot** with **mbedded control algorithms, PID loops, & HMI-based user interface**
- Improved **accuracy** by **8%** through feedback-based control and **real time actuator response**

Smart Sorter & Gesture Control System | NYU | New York *Spring 2023*
- Engineered a **gesture-activated control system** using **IR, Ultrasonic & APDS sensors**integrated into a custom logic circuit
- Built a **color & shape sorter** on **RPi** with **low-latency decision logic** and improved **throughput by 20%**
- Applied computer vision and GPIO signaling for real-time robotic actuation in sorting environments

Leadership Experience

Graduate Adjunct | NYU | New York *Summer 2024 - Summer 2025*
- Mentored **220+ students** in **sensor-actuator interfacing, embedded controls, and simulation workflows**
- Led **hands-on labs** focused on **industrial automation design & PLC programming**
- Designed and delivered an **introductory Machine Learning curriculum** tailored for **high school students**, emphasizing core ML concepts through **project-based instruction**