Akanksha Murali

akankshamurali02@gmail.com | +1 (929) 580-7663 | Portfolio | Linkedin

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

Machine Learning: TensorFlow, PyTorch, Scikit-learn, Deep Learning, CNNs, RNNs, Reinforcement Learning
Computer Vision: OpenCV, Feature Matching, Object Detection, Visual Odometry, SLAM
Programming Languages: Python, C++, C, Java, HTML, SQL, Linux Bash
Data Engineering: Pandas, Spark, NumPy, ETL, Data Cleaning, SQL
Frameworks & Libraries: PyTorch, ROS Humble, OpenCV, SciPy, Pinocchio, Simulink, MATLAB Robotics Toolbox
Tools & Others: Git, Jira, LabVIEW, LPKF CircuitPro, KiCad, Overleaf

Relevent Experience

ModeliCon Infotech | Machine Learning & Simulation Engineer | Bangalore, India *Aug 2022 - Jun 2023*
- Built an ML-based training simulator using **Python, and Unity** to replicate real-world diagnostic scenarios
- Engineered **visual recognition pipelines** and **automated diagnostics**, improving operational efficiency by 20%
- Collaborated in **Agile sprints**, emphasizing **clean code practices**, modular design, and version control

Nivetti Systems | Machine Learning Intern | Bangalore, India *Jan 2022 - Jul 2022*
- Developed a distributed **ROS2 software architecture** for a robotic arm, incorporating **mapping and motion planning** nodes
- Improved system responsiveness by optimizing **inter-process communication** using ROS2 pub-sub and service calls
- Collaborated with a cross-functional engineering team, **integrating C++ modules** into a unified robotic control stack

Equinox PESU | Project Lead | Bengaluru, India *Mar 2021 - Jun 2021*
- Led an **8-member engineering team** to design a **terrain-adaptive Mars rover prototype** in collaboration with **ISRO**
- Developed **CNN-based terrain classifiers** and implemented **sensor fusion** for **resilient autonomous navigation**
- Simulated **real-time path planning** with **A*** and **Dijkstra algorithms**, optimizing **mission-critical mobility**

Academic Projects

Hexapod | NYU Capstone Project | New York *Fall 2024 - Spring 2024*
- Developed and **optimized an MPC based control software** for a 6-legged robot using Python
- Integrated **real-time sensor feedback**, applying PID and MPC algorithms for locomotion

Embodied AI Visual Navigation | NYU | New York *Fall 2024*
- Designed a **real-time ML pipeline** for **place recognition** and **target identification** within **5 seconds**
- Applied **CNN-SVM hybrid models** for **obstacle classification** and **safe trajectory estimation generalizability**

Robot Perception – NYU Course Project | NYU | New York *Fall 2024*
- Engineered a vision system combining **SIFT-based querying**, **plane fitting, and ICP alignment** for spatial localization
- Integrated **Aruco-based AR overlays** and **optical flow tracking** to support dynamic object interaction

Robotic Arm for Mobile Payload Carrier | PES Capstone Project | Bangalore, India *Spring 2023*
- Designed **embedded logic in C++** to control a robotic arm for multi-floor payload delivery
- Developed an **elevator interface and floor recognition module**, integrating ultrasonic and IR sensor data
- Created a user-friendly **HMI interface** using Arduino-based control software

Library Management System | PES | Bangalore, India *Summer 2022*
- Built a modular library management system using **Flask, SQL, and JavaScript**, featuring user authentication and role-based access
- Designed a **responsive UI structure** to handle real-time book inventory and user transactions

Leadership Experience

Graduate Adjunct | NYU | New York *Summer 2024 - Summer 2025*
- Mentored **220+ students** in **machine learning, algorithm design, and simulation frameworks**
- Led hands-on labs and designed a **project-based ML course**, promoting STEM engagement through coding & prototyping