Amey V. Joshi

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Summary

I am a robotics student at **New York University** focused on giving robots **human-like dexterity**. My goal is to let manipulators use rich **tactile feedback** to interact safely and effectively with diverse objects and environments. I'm working on (1) building **generalizable, contact-rich manipulation pipelines** that fuse **tactile sensing**, and (2) leveraging **planner-generated demonstrations** for **imitation learning** to sharpen the robot's **decision making** at each action step.

Projects

Sampling-Based Natural-Gradient MPC for Legged Locomotion (NYU AI4CE Lab) GitHub

Built an end-to-end **MuJoCo + Docker stack** for Unitree Go2, reducing sim-to-real turnaround from days) to hours. Designed reward shaping for consistent **back-flips (≥60% success)**. Benchmarked MPPI variants achieving **25% lower cost** and **2× faster convergence** than baselines (submitted to **RA-L)**

AC-Magnetic Tactile Sensing for Contact-Rich Manipulation (NYU GRAIL Lab) GitHub

Developed an **AnySkin extension** using high-frequency AC magnetic carrier. Designed **band-pass filtering pipeline** rejecting ferromagnetic distortion, reducing pose-dependent error by **60%** and restoring reliable tactile feedback. (POC Stage)

Work Experience

ML Research Intern, La Fondation Dassault Systèmes, India Oct 2023 – Jul 2024

- Built **DiscoverNet** in **PyTorch**, an unsupervised video object discovery framework using **Vision Transformers** and scalable visual tokenization.
- Enhanced **temporal coherence** in video reconstructions with multi-scale adversarial training.
- Improved unsupervised object segmentation accuracy (**FG-ARI: 47.3**) over prior methods.

Robotics Intern, Flytbase Ltd., India Jan 2023 – May 2023

- Developed **ROS APIs** for DJI/ArduPilot drones, streaming sensor and video data via **MAVROS**.
- Deployed a real-time **ELK logging pipeline (Docker)** for debugging drone operations.
- Optimized drone applications (e.g. precision landing, video streaming) via **ROS Nodelets**, cutting CPU/memory usage.

AI Research Intern, Symbiosis Center for Applied AI, India Jun 2022 – Sep 2023

- Advanced drone imagery analysis with **multimodal explainability** methods.
- Designed **ensemble fusion models** to integrate multimodal data, improving perception in drone operations.

Education

Aug 2024 – May 2026 **New York University**, USA
M.S. Mechatronics & Robotics GPA: 3.8/4.0
Research Assistant @ **CILVR Lab, AI4CE Lab**

Jul 2019 – May 2023 **Symbiosis International University**, India
B.Tech. Electronics & Telecommunication Engg. GPA: 8.5/10
Honors in Mechatronics; Team Head @ **ABU-Robocon 2021**

Skills

ML Frameworks	PyTorch, TensorFlow, Jax, MMCV, OpenCV, CUDA
Languages	Python, C++, MATLAB, R
Robotics/Simulation	ROS, Gazebo, MuJoCo, Isaac-sim, Drake, Mavlink
Tools	Git, Docker, Linux, AWS, CMake, ELK Stack, MQTT, Flask, Asyncio, REST API