

# MITANSHU GOEL

[+91 85956 57583](tel:+918595657583) | [mitanshug2004@gmail.com](mailto:mitanshug2004@gmail.com) | [github.com/mitanshu-2004](https://github.com/mitanshu-2004) | [linkedin.com/in/mitanshugoel](https://www.linkedin.com/in/mitanshugoel) | [mitanshu.dev](https://mitanshu.dev) | Delhi, India

## Education

**Maharaja Agrasen Institute of Technology (MAIT), Delhi**

*B.Tech, Electronics & Communication Engineering; Minor in AI & Machine Learning*

**2022 – 2026**

*CGPA: 8.01 / 10*

## Experience

**Nferent AI**

*Physical AI Intern*

**Mar 2026 – Jun 2026**

*Gurugram, India*

- Fine-tuned a  $\pi_{0.5}$  vision-language-action policy on a 10-task demonstration dataset in LeRobot format, collected across two arm platforms, and worked on its inference path.
- Wrote the real-time C++ teleop loop that collected them, across Elite CS66 and Franka Research 3 arms: Cartesian servoing at 125 Hz with Quest 3 hand pose over UDP, dropping bad tracking frames rather than passing them on.
- Built a capture rig that keeps two MANUS gloves and three RealSense cameras on one timebase, drift under 15 ms at p95, with a frame-uniqueness watchdog that fails an episode if a camera silently repeats frames. 45/45 episodes validated.
- Tesollo DG-5F hand (20 motors): wrote the control and a MediaPipe finger-extension classifier that plays rock-paper-scissors.

**SarthakAI**

*AI Intern*

**Jun 2025 – Aug 2025**

*Delhi, India*

- Turned a UBTech Yanshee humanoid into a vision assistant: a custom-trained YOLOv8 detector on its MJPEG stream.
- Wrote the voice side: an NVIDIA NeMo ASR pipeline routing wake-word and commands to a chat service or QR scanner.
- Built a sensor workstation for environmental telemetry in food supply chains: assembled the sensor network, wrote the firmware and the collection code, and streamed readings over WiFi for analysis.
- Built a camera-driven pick-and-sort line on an arm and conveyor, sorting by colour, shape and detected class.

**NextUp Robotics**

*Robotics Intern*

**Jul 2024 – Sep 2024**

*Ghaziabad, India*

- Stood up a supplied 6-DOF arm in ROS 2: URDF with links, joints and collision geometry, checked in Gazebo and RViz.
- Configured MoveIt with KDL inverse kinematics for Cartesian and waypoint paths, validated in simulation, then got them running on the real arm after fixing the URDF mismatches that were breaking trajectories.

## Projects

**brace-for-impact**, does warning a walking robot before a shove help? | *MuJoCo, mjlal, PPO (rsl\_rl), Unitree Go1* [GitHub](#)

- Built the task on top of mjlal: a random shove every few seconds, plus a warning term that tells the policy the direction, force and time-to-arrival. Difficulty rises per robot as it learns.
- Trained two PPO policies, 4096 parallel envs and 393M steps each, differing only in whether the actor sees the warning.
- Take the warning away at test time and the same policy falls 52.3% of the time instead of 1.2%: it had learned to depend on it.

**Hexapod**, 18-DOF walking robot (A.T.O.M. team project) | *ROS 2 Humble, ros2\_control, Gazebo, Docker*

[GitHub](#)

- Wrote the control node: a `/cmd_vel` command becomes