

SIDDARTH DAYASAGAR

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EDUCATION

Northeastern University, Boston, MA

Expected Dec 2026

Master of Science in Robotics, Electrical and Computer Engineering | GPA: 3.63/4.0

Jain University, Bangalore, India

June 2023

Bachelor of Technology in Robotics and Automation | GPA: 8.66/10

SKILLS

Programming:	Python, C++, MATLAB
Libraries:	PyTorch, ROS (Noetic), ROS2 (Humble, Jazzy), OpenCV, PCL, CasADi, Pinocchio, LeRobot
Simulation:	MuJoCo, IsaacSim, IsaacLab, Gazebo Classic, Gazebo Harmonic
Dev Tools:	Git, Linux, Fusion 360, Arduino UNO R3, Raspberry Pi 4B+
Certs:	Udacity Robotics Nanodegree, Rigbetel Labs ROS Mentorship Program

WORK EXPERIENCE

Robotics Research Intern

Aug 2025 – Dec 2025

SpaceData Inc., Tokyo, Japan

- Owned the **full pipeline** from experiment design to deployment of a **PPO-based visuomotor locomotion policy** in **Isaac Lab**, achieving ~70% improvement in **cumulative reward** and **locomotion speed** over the company pretrained baseline through iterative reward shaping, hyperparameter tuning, and domain randomisation.
- Deployed a full **ROS 2** autonomy stack integrating **Nav2** with an **MPPI** local planner and **behaviour trees** for GPS-denied disaster-response navigation, validating **sim-to-real transfer** under sensor noise and environment variability.
- Architected **Space Station OS**, an open-source modular **ROS 2** simulation framework replicating ISS-inspired life support, thermal, and power subsystems using behaviour-tree-driven coordination, featured by Northeastern University News for contributions to space systems software.

Robotics Systems Integration Intern

Sept 2022 – Apr 2023

Flomobility, Bangalore, India

- Debugged and validated a full-stack **vision-based localisation pipeline** during robot bring-up, resolving **hardware-software integration** issues between the sensor stack and navigation system to eliminate localisation drift.
- Designed and deployed **PID and Bang-Bang control laws** for physical actuators, iteratively tuning closed-loop gains against real hardware response to maximise operational efficiency, evaluating **classical vs. learning-based** control tradeoffs.
- Managed **Git**-based version control and system-wide software integrity on **Linux**, ensuring a robust production framework across mechanical, electrical, and software subsystems.

PROJECTS

PRANA, Visuomotor VLA Policy on 7-DoF Arm

Mar 2025 – Apr 2025

VLA, Visuomotor Control, Behaviour Cloning, PyTorch, LeRobot, Transformer

- Architected an end-to-end **visuomotor policy** pipeline from scratch, dual-camera ViT encoders, PaliGemma tokenizer, 4-layer Transformer with 50-step **action chunking**, trained via **behaviour cloning** on LeRobot, tackling **partial observability** and **environment variability** head-on.
- Built a standardised **data collection** pipeline using LeRobotDataset for efficient multimodal sensor streaming, continuously improving **visuomotor policy** generalisation across **grasping** and manipulation task variations.
- Owned the full pipeline from **data collection to real-robot deployment** on a physical **7-DoF arm**, achieving a **73% task success rate** (11/15 trials) on autonomous **grasping and pick-and-place** including sub-centimetre screwdriver retrieval under real-world **contact dynamics**.

BHEEMA, Bipedal Humanoid with Whole-Body Controller

Jan 2026 – Apr 2026

MPC, Whole-Body Control, Contact Dynamics, MuJoCo, Pinocchio

- Devised a high-frequency **Whole-Body Controller (WBC)** using **Model Predictive Control** modelled on the MIT Cheetah framework, enabling robust **dynamic balancing** and agile locomotion for a high-DoF humanoid platform in **MuJoCo**.
- Architected a full **contact-aware control stack** integrating Pinocchio rigid-body dynamics, centroidal momentum control, and QP torque allocation, tackling **contact dynamics** and high-DoF motion regulation with no established solution path.
- Validated **stability** under simulated contact perturbations and terrain variations, systematically analysing failure modes and iterating on controller gains.

Franka Panda Manipulation, Classical to Learning-Based

Nov 2025 – Dec 2025

PPO, Reinforcement Learning, MuJoCo, PyTorch, OMPL, Pinocchio

- Extended a classical **pick-and-place** pipeline (HSV perception, Pinocchio IK, OMPL RRTCConnect) by training a **PPO policy** for a 7-DoF arm in **MuJoCo** with Cartesian end-effector increments, Gaussian policies, GAE, and entropy regularisation.
- Made principled design decisions on **tradeoffs between classical and learning-based** control, demonstrating that the RL policy generalised to **contact-rich configurations** and object reorientation tasks where IK-based methods consistently failed.
- Designed task-specific **reward shaping** and safety penalties covering reach-to-object, joint limits, smooth motion, and collision avoidance, validating **visuomotor manipulation** performance end-to-end in simulation.