Shailesh

🌐 Portfolio
🔗 Github

in Shailesh
✉ shailesh.xml@gmail.com

EDUCATION

- **Indian Institute of Technology, (IIT ISM) Dhanbad** — Dhanbad, India
  Bachelors of Technology in Electrical Engineering — *Class of 2025*
- **Al Momin International School** — Gaya, India
  High School(12th); Percentage: 92.4% — *Class of 2021*

PUBLICATIONS

- **GRIM: Task-Oriented Grasping with Conditioning on Generative Examples** [Project Page] [arXiv]
  Shailesh, Alok Raj, Nayan Kumar, Priya Shukla, Andrew Melnik, Micheal Beetz, Gora Chand Nandi
  - **AAAI 2026 (Oral)**.

- **Search-TTA: A Multimodal Test-Time Adaptation Framework for Visual Search in the Wild** [Project Page][arXiv]
  Derek M. S. Tan, Shailesh, Boyang Liu, Alok Raj, Qi Xuan Ang, Weiheng Dai, Tanishq Duhan, Jimmy Chiun, Yuhong Cao, Florian Shkurti, Guillaume Sartoretti
  - **CoRL 2025**.

EXPERIENCE

- **MARMoT Lab: National University of Singapore (NUS)** — Singapore
  Under Prof. Guillaume Sartoretti — *Dec 2024 - Present*
  - **Project**: Long Horizon Mobile Manipulation.
    - Developing a manipulation-aware locomotion policy for long-horizon mobile manipulation tasks.

- **CIR: IIIT Allahabad** [video] — Prayagraj, India
  Under Prof. G.C. Nandi & Andrew Melnik — *Aug 2024 - May 2025*
  - **Project**: Robotic Grasping
    - Designed grasping policy leveraging **ViT**-based visual features.
    - Performed real robot experiments with Kinova Lite manipulator.

- **ERC Lab, National Taiwan Normal University** [video] — Taipei, Taiwan
  Robotics Intern: Under Prof. Saeed Saeedvand & Prof. Jacky Baltes — *May 2024 - Jul 2024*
  - **Project**: Collaborative control of upper & lower body of wheeled humanoid robot using multi-agent RL.
    - Trained robust policy to maneuver and jump in **Isaac Gym** environment.
    - Trained collaborative policies for upper and lower body, using **MAPPO**, **IPPO** & **Dual-A2C**.
    - Developed a unified policy enabling the upper body to perform manipulation tasks while the lower body concurrently handled balance and maneuvering.

- **Stochastic Robotics Lab, Indian Institute of Science (IISc, Bangalore)** — Bangalore, India
  Robotics Intern: Under Prof. Shishir Kolathaya NY — *December 2023*
  - **Project**: RL-based locomotion controller of legged robot.
    - Trained a unified RL policy achieving 4 distinct gait behaviors, improving locomotion diversity."
    - Robot trained on teacher-student curriculum learning.
    - Developed a ROS package for the same robot platform.
    - Transferred the RL policy into **ROS**(**Gazebo**) environment.

- **TEXMiN (Technology Innovation Hub)** [video] — Dhanbad, India
  Project Assistant: Under Prof. Arun Dayal Udai — *Feb 2023 - Apr 2024*
  - **Project**: Development of in-house Quadrupedal Robot for Mining Application.
    - Developed ROS based framework for a in-house developed Quadrupedal Robot.
    - Derived kinematics & dynamics for the robot.
    - V1: Locomotion controller using **ZMP** stabilization.
    - V2: Reinforcement Learning based control policy.
    - Hardware testing of locomotion controller.

SELECTED PROJECTS

- **mini_GPT** [link]
  Personal Project *August 2024*
  - · Implemented GPT-3 style transformer model architecture from scratch.
  - · Model was trained on Shakespeare Dataset.

- **Inter IIT Tech Meet 11.0** [video]
  Drona Aviation Problem Statement *Dec 2022 - Feb 2023*
  - · **Project**: Hovering a pluto drone on a particular height using ArUco Tag. Using ArUco tag, get a pose estimation of the drone. Move the drone in rectangular motion (1 x 2 meter). Make the second drone follow the first drone.
  - · Worked on accurate pose estimation of drones with ArUco Tag using a single monocular camera.

- **Two-Wheeled Self Balancing Robot** [video]
  Mentored by Prof. Arun Dayal Udai *Mar 2023 - Dec 2023*
  - · Developed a custom cascaded PID based controller that incorporate acceleration value as well.
  - · Simulated our robot in Gazebo(cascaded PID controller) and in Simulink(with LQR controller)
  - · Designed and build a two wheeled robot in hardware from scratch.

SKILLS

- **Programming**: Python, C++, Linux, Git
- **ML/AI**: RL, ViTs, VLMs, Diffusion Models
- **Simulation/Visualization**: Isaac Sim, Gazebo, RViz, CoppeliaSim, Simulink
- **Frameworks/Libraries**: ROS/ROS2, PyTorch, Open3D, MoveIt, OpenCV, Matplotlib
- **Hardware**: Jetson Orin, Microcontrollers, Servo Actuators, Power Electronics, IMUs, 3D Printing

RELEVANT COURSEWORK

- **Robotics**: Reinforcement Learning, Self Driving Cars, Controls Bootcamp, Industrial Robotics & Automation
- **Mechatronics**: Embedded Systems, Engineering Mechanics, Analog and Digital Electronics
- **Software**: Machine Learning, Deep Learning, Data Structure & Algorithm

HONORS AND AWARDS

- 1st Position: ($12,000) Robofest Gujarat 3.0 2023 (India's Biggest Robotics Competition)

- 1st Position: Vichesta(ROS simulation competition), Takshak 2022 (East India's Largest Robotics Fest)

- 3rd Position: Robowars(BattleBots) at Concetto 2022 (Annual Tech Fest of IIT Dhanbad)