

# Shailesh

Portfolio

Github

Shailesh

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## 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  
◦ Accepted at **RSS 2025** and **ICML 2025** Workshops.
- **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  
◦ Submitted to **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.
    - Fine-tuned generalist  $\pi_0$  (VLA) manipulation policy on custom dataset.
    - Previously worked on fine-tuning VLM models for reason based image segmentation.
- **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

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- **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

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- **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

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- **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

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- 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)