Soumo Roy

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EDUCATION

Vellore Institute of Technology (VIT)   **Vellore, Tamil Nadu, India**
Bachelor of Technology in Electronics and Communication Engineering   *July 2021 - May 2025*
CGPA: 8.83/10 **(Top 10% of the batch)**

TECHNICAL SKILLS

Programming Languages: Python, C++, MATLAB, LaTeX
AI/ML Libraries and Developers Tools: PyTorch, Pandas, Numpy, OpenCV, Git, Docker, Linux(Ubuntu)
Simulation Packages: ROS1, ROS2, Gazebo, RVIZ, MuJuCo, pybullet, OpenAI Gym
Hardware/Boards: NVIDIA Jetson Nano, Intel Atom, Arduino , Raspberry Pi, STM32 , ESP32

WORK EXPERIENCE

Research Assistant
IIIT Hyderabad, Telangana, India   *January 2025 - present*

* Working under Dr Madhava Krishna at RRC (Robotics Research Center) at IIIT Hyderabad
* Implemented a path planner for an autonomous wheelchair for navigating in crowded environments using generative AI (VQ-VAE and PixelCNN) with a novel sampling optimiser which improved efficiency by 40% compared to state of the art learning based approaches.

SN Bose Summer Research Intern
NIT Silchar, Assam, India   *June 2024 - July 2024*

* Worked under Dr Yogesh Singh at Advanced Robotics Research Lab, NIT Silchar
* Collaborated on a MATLAB simulation of shape memory alloy(SMA) based assistive robotic glove simulation for patients with wrist mobility issues, which reduced strain by 78%.

SURGE Research Intern
IIT Kanpur, Uttar Pradesh, India   *May 2024 – June 2024*

* Guided by Dr. Tushar Sandhan and Mr. Prem Raj at Intelligent System Control Lab, IIT Kanpur
* Contributed to a human robot collaboration project using imitation learning with UR5 collaborative robot and Intel RealSense camera for the collaborative action of heavy object lifting with an efficiency of 68% compared to reinforcement learning approaches.
* Was one among 42 students selected under the institute project funded category at the IIT Kanpur

Robotics System Validation Intern
Unbox Robotics, Maharashtra, India   *August 2023 – November 2023*

* Developed a project to automate the testing of the web page used for controlling robots using webdriver.io and JavaScript, Docker and deployed it on GitLab CI/CD pipeline, which improved validation teams' testing efficiency by 20%.

PROJECTS

* **Spoon feeder**, Implemented reinforcement learning algorithms (PPO, SAC and DDPG) across different manipulators simulating feeding and drinking tasks on OpenAI gym, which was published in IEEE INDICON-24 conference [GitHub](#)
* **Crowdsurfer-ROS**, Utilized generative AI with sampling optimiser for path planning for a mobile robot to navigate in a crowded environment with dynamic obstacles, won best bachelor thesis award for the project [GitHub](#)
* **Eyantra Robotics Competition (IIT Bombay)**, Navigated a mobile robot with the help of SLAM algorithms in a warehouse by detecting and localising the packages placed on racks, and manipulating the robotic arm to pick them up where we were among the top 5 performing teams to represent our college at IIT Bombay. [GitHub](#)

PUBLICATIONS

* **S. Roy**, J. Viju, B. Bhattacharya,"Adaptive Robotic Manipulator Simulation for Enhanced Feeding and Drinking Assistance", 21st IEEE INDICON-2024 DOI: 10.1109/INDICON63790.2024.10958301   [Link](#)
* S. Chowdhury,**S. Roy**, D. G. Chowdhury, S. Chakraborty, B. Bhattacharya, "SKIDS: An Object Classification and Smart Communication based Waste Bin", 3rd IEEE AIIoT-2024 DOI: 10.1109/AIIoT58432.2024.10574647   [Link](#)

ACHIEVEMENTS

* Featured in Telengana state newspaper during R&D showcase 2025, and attracted more than 300+ visitors to our poster based on my bachelor thesis [(link)](#)
* Won a seed grant of **Rs 1.5 lakh ($1790)** from VIT faculty-student sponsored project fund for a medical assistive robot project under Dr. Budhaditya Bhattacharyya at Advance Digital Signal Processing Lab as a part of my final year project [Link](#)