

Research Interests

Reinforcement Learning, Imitation learning, Vision-language models in Robotics, Uncertainty Quantification

Education

2022–Present **Ph.D., Computer Science**, *University of California, Riverside*.

Advisor: Amit K. Roy-Chowdhury, **GPA:** 3.87/4

Research Area: Policy learning and adaptation through auxiliary data, VLM and human feedback

2017–2019 **Master of Technology, Computer Science**, *Indian Statistical Institute*.

Advisor: Dipti Prasad Mukherjee, **GPA:** 79.9%

Thesis: Graph Neural Networks for segmentation

2013–2017 **Bachelor of Engineering, Electrical Engineering**, *Jadavpur University*.

Advisor: Debangshu Dey, **GPA:** 8.31/10

Thesis: MRI segmentation with Fuzzy Algorithms

Research/Work Experience

Sep 2022 – **University of California, Riverside**, *Graduate Student Researcher*.

- Present
- Advisor: Amit K. Roy-Chowdhury
 - Imitation Learning with Auxiliary Data for unknown and mixed quality; utilizing low quality demonstrations for robust performance.
 - Reward modeling for embodied AI through a synergy of VLM and Human Preference.
 - Uncertainty quantification in scene graph for other downstream task like navigation

Jul 2019– **Zendrive Inc., Bangalore**, *Data Scientist*.

- Aug 2022
- In-vehicular Collision Detection with Multimodal Wavelets
 - Customer scoring from mobile telematics

Nov 2018– **Indian Statistical Institute**, *Student Researcher*.

- Jun 2019
- Advisor: Dipti Prasad Mukherjee
 - Graph Neural Network for object segmentation
 - Structured Support Vector Machines for node classification

May 2018– **EarlySalary, Pune**, *Research Intern*.

- Aug 2018
- Customer behavior modelling
 - Sentiment Analysis from preference and conversation

May 2016– **Indian Statistical Institute**, *Research Intern*.

- Aug 2016
- Mentor: Bhabatosh Chanda
 - Traffic load estimation with segmentation
 - Video processing with Morphology and Point Feature Matching

Publications

- **Preference VLM: Leveraging VLMs for Scalable Preference-Based Reinforcement Learning** | (Under Review)
[Udita Ghosh](#), Dripta S Raychaudhuri, Jiachen Li, Konstantinos Karydis, Amit K. Roy-Chowdhury
- **Robust Offline Imitation Learning from Diverse Auxiliary Data** | (Under Review)
[Udita Ghosh](#), Dripta S Raychaudhuri, Jiachen Li, Konstantinos Karydis, Amit K. Roy-Chowdhury

- **Conformal Prediction and MLLM aided Uncertainty Quantification in Scene Graph Generation** | CVPR 2025
Sayak Nag*, Udita Ghosh*, Calvin-Khang Ta, Sarosij Bose, Jiachen Li, Amit K. Roy-Chowdhury
- **Graph-based Modelling of Superpixels for Identification of Empty Shelves** | Pattern Recognition 2022
Bikash Santra*, Udita Ghosh*, Dipti Prasad Mukherjee
- **Deciphering Environmental Air Pollution with Large Scale City Data** | IJCAI 2022
Mayukh Bhattacharyya*, Sayan Nag*, Udita Ghosh

Technical Skills

- **Programming Skills:** Python, C++, MATLAB, PyTorch, Tensorflow
- **Scientific Computing Libraries:** numpy, scipy, scikit-learn, matplotlib, opencv
- **Simulators/Tools:** Mujoco, AI Habitat, Gymnasium, ThreeDWorld

Coursework

- Design and analysis of algorithms
- Linear Algebra
- Advanced Computer Vision
- Advanced Machine Learning
- Optimization in Machine Learning
- Safe and Trustworthy AI
- Natural Language Processing

Awards

- **Dean's Distinguished Fellowship Award**, University of California, Riverside, 2022
- **Best Dissertation Nomination, ISI, 2019**
- **Merit Award, ISI (2018,2019)** (top 5 students)

Professional Services

Reviewer of **IEEE TPAMI**.