Udita Ghosh

(951) 907-8593
udita.ghosh@email.ucr.edu

Research Interests

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

Education

2022–Present **Ph.D., Computer Science**, *University of California, Riverside*.
Advisor: Amit K. Roy-Chowdhury, **GPA:** 3.87/4
Research Area: Policy learning through auxiliary data, VLM or multiple agents

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 – Present **University of California, Riverside**, *Graduate Student Researcher*.
- 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
- Multi-agent collaboration through modelling of belief states.

Jul 2019– Aug 2022 **Zendrive Inc., Bangalore**, *Data Scientist*.
- In-vehicular Collision Detection with Multimodal Wavelets
- Customer scoring from mobile telematics

Nov 2018– Jun 2019 **Indian Statistical Institute**, *Student Researcher*.
- Advisor: Dipti Prasad Mukherjee
- Graph Neural Network for object segmentation
- Structured Support Vector Machines for node classification

May 2018– Aug 2018 **EarlySalary, Pune**, *Research Intern*.
- Customer behavior modelling
- Sentiment Analysis from preference and conversation

May 2016– Aug 2016 **Indian Statistical Institute**, *Research Intern*.
- 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** | **TMLR** 2025
  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**.