Lakshita Dodeja

lakshitadodeja.github.io/website lakshita_dodeja@brown.edu

Research Interests

Reinforcement Learning for Manipulation, Uncertainty Quantification, Human in the Loop Learning

Education

Brown University Providence, Rhode Island
Ph.D. in Computer Science
Advised by Prof. Stefanie Tellex, GPA: 4.0/4.0 2023-present

Georgia Institute of Technology Atlanta, Georgia
Masters in Computer Science
Advised by Prof. Matthew Gombolay, GPA: 4.0/4.0 2021-2023

National Institute of Technology Kurukshetra, India
Bachelors in Computer Science
Top 10 students of the department, GPA: 9.35/10 2014-2018

Research Experience

Robotics and AI Institute Cambridge, MA
Research Intern Sept'25-Present

- Conducting research on improving robot manipulation policies using reinforcement learning
- Devising a new method for Q function initialization and updation in a sample efficient manner
- Mentored by Thomas Weng and Karl Schmeckpeper

Humans to Robots Lab, Brown University Providence, RI
Graduate Research Assistant, advised by Stefanie Tellex Sept'23 - Present

- Introduced a novel residual reinforcement learning framework to provide corrective actions to robotic manipulation policies facilitating rapid adaptation to environmental changes and task dynamics
- Used uncertainty estimates of the base policy to guide the exploration of residual policy
- Introduced a new assymetric actor-critic approach for Residual RL
- Performed real robot experiments on a Franka Panda Arm using sim-to-real transfer

CORE Robotics Lab, Georgia Tech Atlanta, GA
Graduate Researcher, advised by Matthew Gombolay Sep'21 - May'23

- Lead a user study with $\sim$ 100 participants for dessigning strategy recommendation systems for collaborative Human-AI tasks
- Trained a language model to extract goals and constraints from unstructured natural language strategies
- Contributed to a new dataset for mapping natural language to intrinsics strategies
- Published work in IJHCS and EMNLP

Publications

[1] **Lakshita Dodeja**, Karl Schmeckpeper, Shivam Vats, Thomas Weng, and Stefanie Tellex. "Accelerating Residual Reinforcement Learning with Uncertainty Estimation". In: *Second Workshop on Out-of-Distribution Generalization in Robotics at RSS 2025*.

[2] Pradyumna Tambwekar, **Lakshita Dodeja**, Nathan Vaska, Wei Xu, and Matthew Gombolay. "A Computational Interface to Translate Strategic Intent from Unstructured Language in a Low-Data Setting". In: *The 2023 Conference on Empirical Methods in Natural Language Processing*.

[3] **Lakshita Dodeja***, Pradyumna Tambwekar*, Erin Hedlund-Botti, and Matthew Gombolay. "Towards the design of user-centric strategy recommendation systems for collaborative Human–AI tasks". In: *International journal of human-computer studies* 184 (2024), p. 103216.

[4] Palak Garg, **Lakshita Dodeja**, Priyanka, and Mayank Dave. "Hybrid color image watermarking algorithm based on DSWT-DCT-SVD and Arnold transform". In: *Advances in signal processing and communication: select proceedings of ICSC 2018*. Springer, 2018, pp. 327–336.

Work and Other Experience

Amazon Bangalore, IN
Software Development Engineer - II Jun'18 - Aug'21

- Developed a comprehensive reusable system in java for real-time verification for student identity
- Led the development of a real time military identity verification software for veteran day
- Successfully ran a seven-day long campaign registering 500k+ customers
- Conceptualized, designed and developed a process for manual document verification by customer service agents with secure storage of documents.

National Institute of Technology Kurukshetra, IN
Undergraduate Researcher Aug'17 - May'18

- Developed a new algorithm for digitally watermarking colored images using Discrete Stationary Wavelet Transform (DSWT), Singular Value Decomposition (SVD), Discrete Cosine Transform (DCT) and Arnold Transform
- Simulated an energy-efficient rekeying mechanism for clustered WSAN and compared it with Sequence Based Key Management Scheme (SKM)

Indian Institute of Technology Hyderabad, IN
Research Intern Aug'17 - May'18

- Developed an app to estimate the Quality of Experience (QoE) of the user for different network connections : MPTCP vs WLAN vs LTE in terms of Mean Opinion Score (MOS)
- Recorded a 34.4% better MOS than LTE and 20.4% better MOS than WLAN for MPTCP

Grants & Scholarships

- RSS travel grant by Brown University
- CoRL registration scholarship
- GHC travel grant by Georgia Institute of Technology
- KVPY scholarship by Indian Govt

Teaching

- Teaching Associate : Using AI to create AI, *Brown University* 2025
- Graduate TA : Robot Intelligence Planning, *Georgia Institute of Technology* 2022

Service

- DEI committe, *Brown Graduate Student Council* 2024
- Peer Review, *ICRA, RSS-W* 2024, 2025, 2026
- Student Volunteer, *CoRL* 2023
- CS Recruitment Coordinator, *Brown University* 2024, 2025