

Manisha Natarajan

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Education

Georgia Institute of Technology

PH.D. IN ROBOTICS, SCHOOL OF INTERACTIVE COMPUTING

Atlanta, GA

Aug 2020 – May 2025 (Expected)

- **Specialization:** Artificial Intelligence; Human-Robot Interaction
- Advised by Dr. Matthew Gombolay, GPA: 3.85/4.0

M.S. IN ELECTRICAL AND COMPUTER ENGINEERING

Aug. 2017 – May 2019

- **Selected Coursework:** Artificial Intelligence; Foundation Models; Interactive Robot Learning; Graphical Models in ML

Ramaiah Institute of Technology

B.E. IN ELECTRICAL AND ELECTRONICS

Bangalore, India

Aug. 2013 – Jun 2017

- Graduated Top of the Class with Honors - **Gold Medalist** (GPA: 9.58/10.0)

Professional Experience

Georgia Institute of Technology | GRADUATE RESEARCH ASSISTANT

Aug 2020 – Present | Atlanta, GA

- Enhance human-robot team performance by adapting robot behavior based on human compliance (AAMAS'24).
- Project Lead on NIH-RO1 grant to design AI-based decision support for assisting perfusionists during cardiac surgery.
- Developed novel architectures to predict adversarial agent trajectories using graph nets and diffusion models (IROS'23).
- Designed a novel task scheduling algorithm for human-robot teams, improving team performance by 44.8% (THRI'21).

Georgia Institute of Technology | RESEARCH SCIENTIST

Jun 2019 – May 2020 | Atlanta, GA

- Conducted user studies to assess trust and dependence on robots providing decision-support (T-RO'24, HRI'20).
- Analyzed the effects of varying stress and workload levels on user performance while teleoperating robots (T-RO'24).

Honda Research Institute | SUMMER INTERN

May – Aug 2021 | San Jose, CA

- Invented an adaptive algorithm (**Patent** #12,017,679) that adjusts self-driving car behavior to align with user preferences.

R-DEX Systems | ROBOTICS INTERN

Aug – Dec 2018 | Atlanta, GA

- Designed path-planning algorithms to ensure safe robot navigation in dynamic warehouse environments.

Magic Leap Inc. | MACHINE VISION INTERN

May – Aug 2018 | Plantation, FL

- Built an automated anomaly detection framework for Magic Leap using ResNets and developed a Flask API for visualization.

Indian Institute of Technology - Bombay | RESEARCH FELLOW

May – Aug 2016 | Mumbai, India

- Devised a novel strategy to optimize solar panel cleaning with mobile robots using Sinusoidal Pulse Width Modulation.

Skills

- **Programming Languages:** Python; C++; C#; R; JavaScript; MATLAB
- **Tools:** PyTorch; Tensorflow; Git; Docker; ROS; React; AWS; HuggingFace
- **Methods:** Machine Learning; Reinforcement Learning; Deep Learning; Generative AI (Diffusion Models, GANs, Large Language Models); Probabilistic Graphical Models; User Research

Selected Publications

Trust and Dependence on Robotic Decision Support

T-RO, 2024

M. Natarajan, M. Gombolay

Mixed-Initiative Human-Robot Teaming with Online Bayesian Adaptation

AAMAS, 2024

M. Natarajan*, C. Xue*, S. van Waveren, K. Feigh, and M. Gombolay

Learning Models of Adversarial Agent Behavior under Partial Observability

IROS, 2023

S. Ye, M. Natarajan*, Z. Wu*, R. Paleja, L. Chen, and M. Gombolay

Coordinating Human-Robot Teams with Dynamic and Stochastic Task Proficiencies

THRI, 2021

R. Liu*, M. Natarajan*, and M. Gombolay