Ravi Pandya

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Google Scholar

Education / Professional History

2020 - 2025 **PhD Candidate in Robotics**, *Carnegie Mellon University, School of Computer Science*.
Graduation: August 2025
Advisors: Changliu Liu, Andrea Bajcsy
Thesis: Influence-Aware Safe Human-Robot Interaction
- **Current work:** Using reinforcement learning (RL) to fine-tune large language models (LLMs) to *safely* influence people
- **Selected previous work:** Generating collaborative strategy explanations via LLM annotations; Safe reinforcement learning in collaborative manipulation with deep trajectory forecasting

GPA: 4.17/4.0

Selected Coursework.
Machine Learning, Deep Learning, Artificial Intelligence, Convex Optimization, Computer Vision, Robotics, Optimal Control, Linear Systems, Nonlinear Systems, Linear Algebra

2019 - 2020 **Ericsson (Global AI Accelerator)**, *Data Scientist*, Santa Clara, CA.
Used multi-agent deep reinforcement learning algorithms to tune parameters in a radio network.

2015 - 2019 **BS, Electrical Engineering and Computer Science**, *University of California, Berkeley*.
GPA: 3.86/4.0, Graduated with Honors
Research Advisors: Anca Dragan, Ruzena Bajcsy
Research: Worked on modeling how actions can communicate and gather information for robots.

Awards and Honors

2024 **Oral Presentation at ACC 2024**.

2020-2025 **National Science Foundation Graduate Research Fellowship**, (15% acceptance).

2019 **Oral Presentation at CoRL 2019**, (5.3% acceptance).

2018 **Best Paper Award Finalist at IROS 2018**.

Technical Skills

Languages: Python, MATLAB, Julia, C, Java, Linux / command line

Libraries: Numpy/Scipy/Pandas, PyTorch, Hugging Face (transformers/trl/peft), Weights & Biases, robosuite, MuJoCo, TensorBoard, ROS, Ray/RLlib, PsiTurk

Concepts: Machine Learning, Deep Learning, LLMs/Transformers, Reinforcement Learning, Robotics, Optimal Control, Safe Control, Model Predictive Control (MPC)

Languages: English, Gujarati, 日本語

Publications

Link to Google Scholar profile

* Selected publications listed in blue

[11] S. Sagheb, S. Parekh, **R. Pandya**, Y. Mun, K. Driggs-Campbell, A. Bajcsy, D.P. Losey, "A Unified Framework for Robots that Influence Humans over Long-Term Interaction," *(in submission) arXiv preprint*, 2025.

[10] **R. Pandya**, C. Liu, A. Bajcsy, "Robots that Learn to Safely Influence via Prediction-Informed Reach-Avoid Dynamic Games," *International Conference on Robotics and Automation (ICRA)*, 2025.

[9] T. Wei, L. Ma, **R. Pandya**, C. Liu, "Robust Safe Control with Multimodal Uncertainty," *(in submission) arXiv preprint*, 2024.

[8] **R. Pandya**, T. Wei, C. Liu, "Multimodal Safe Control for Human-Robot Interaction," *American Control Conference (ACC)*, 2024, **(oral)**.

[7] **R. Pandya***, M. Zhao*, C. Liu, R. Simmons, H. Admoni, "Multi-Agent Strategy Explanations for Human-Robot Collaboration," *International Conference on Robotics and Automation (ICRA)*, 2024.

[6] **R. Pandya***, Z. Wang*, Y. Nakahira, C. Liu, "Towards Proactive Safe Human-Robot Collaboration via Data-Efficient Conditional Behavior Prediction," *International Conference on Robotics and Automation (ICRA)*, 2024.

[5] **R. Pandya**, C. Liu, "Safe and Efficient Exploration of Human Models during Human-Robot Interaction," *International Conference on Intelligent Robots and Systems (IROS)*, 2022.

[4] S.H. Huang*, I. Huang*, **R. Pandya***, A.D. Dragan, "Nonverbal Robot Feedback for Human Teachers," *Conference on Robot Learning (CoRL)*, 2019 **(oral, acceptance 5.3%)**.

[3] **R. Pandya**, S.H. Huang, D. Hadfield-Menell, A.D. Dragan, "Human-AI Learning Performance in Multi-Armed Bandits," *AAAI/ACM Conference on Artificial Intelligence, Ethics, and Society (AIES)*, 2019.

[2] A. Nagabandi, G. Yang, T.H. Asmar, **R. Pandya**, G. Kahn, S. Levine, R. Fearing, "Learning Image-Conditioned Dynamics Models for Control of Under-Actuated Legged Millirobots," *International Conference on Intelligent Robots and Systems (IROS)*, 2018 ***(best paper award finalist)***.

[1] A. Bestick, **R. Pandya**, R. Bajcsy, A.D. Dragan, "Learning Human Ergonomic Preferences for Handovers," *International Conference on Robotics and Automation (ICRA)*, 2018.

Professional Service

Paper Reviewing

ICRA, IROS, RA-L, CoRL, ICLR, L4DC, T-ASE

Mentorship and Teaching

2023 - now **CMU Robotics Institute Robobuddies Program**, *Mentor.*

2021 - now **CMU Graduate Application Support Program**, *Mentor.*

2021 - now **CMU Paths to AI Research (PAIR)**, *Mentor.*

2022 - 2023 **Human-Robot Interaction - Foundations**, *Teaching Assistant.*

Fall 2018 **Intro to Robotics**, *Teaching Assistant.*

Sum 2018 **Interact Lab Summer Internship**, *Mentor.*

Spr 2019 **Feedback Control Systems**, *Reader/Tutor.*

Spr 2018 **Designing, Visualizing and Understanding Deep Neural Networks**, *Reader/Tutor.*

Invited Talks

Dec 2024 **CMU Robotic Caregiving and Human Interaction (RCHI) Lab**, *Intro to Safe Control and Influence-Aware Safe HRI.*

Jul 2024 **American Control Conference (ACC) - Selected Oral**, *Multimodal Safe Control for HRI.*

May 2024 **CMU Learning and Control Seminar (CMU-LCS)**, *Towards Influence-Aware Safe HRI.*

Apr 2024 **PhD Thesis Proposal - Oral Presentation**, *Towards Influence-Aware Safe HRI.*

Mar 2024 **CMU Provably Safe Robotics Course Lecture**, *Intro to Reachability Analysis and Deception Games.*

Mar 2023 **CMU HRI Course Lecture**, *Implicit Communication in Human-Robot Interaction.*

Oct 2023 **CMU Learning and Control for Agile Robotics (LeCAR) Lab**, *Multi-Agent Strategy Explanations for Human-Robot Collaboaration.*

Nov 2019 **Conference on Robot Learning (CoRL) 2019 - Selected Oral**, *Nonverbal Robot Feedback for Human Teachers.*