

Mehul Damani

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EDUCATION

- **Massachusetts Institute of Technology** Cambridge, MA
Ph.D. in Computer Science August 2022 - Present
Advisor: Jacob Andreas
- **Nanyang Technological University** Singapore
Bachelor of Mechanical Engineering, Minor in Mathematics 2018 - 2022
Honours (Highest Distinction)

EXPERIENCE

- **Robot Learning Lab, New York University** Remote
Research Intern, advised by Lerrel Pinto January 2021 - August 2022
 - Developed automatic curriculum generation methods for goal-conditioned reinforcement learning agents
- **Multi-Agent Robotic Motion Lab, National University of Singapore** Singapore
Research Intern, advised by Guillaume Sartoretti April 2020 - July 2022
 - Developed decentralized reinforcement learning methods for applications in multi-agent systems
 - Co-authored 4 papers, open-sourced code with 100+ stars on Github
- **Satellite Research Centre, Nanyang Technological University** Singapore
Research Assistant September 2019 - April 2020
 - Developed regression models to characterize drift and bias of sensors for their integration into the ADCS of a satellite
- **Temasek Labs, Nanyang Technological University** Singapore
Research Assistant June 2019 - February 2020
 - Launched and successfully retrieved high-altitude balloon (HAB) in Malaysia to obtain data in near-space region

PUBLICATIONS

- [1] J. Yocum, P. Christoffersen, **Mehul Damani**, *et al.*, “Mitigating generative agent social dilemmas,” in *NeurIPS 2023 Foundation Models for Decision Making Workshop*, 2023.
- [2] S. Casper, X. Davies, C. Shi, *et al.*, “Open problems and fundamental limitations of reinforcement learning from human feedback,” *Accepted at TMLR*, 2023.
- [3] H. Goel, Y. Zhang, **Damani, Mehul**, *et al.*, “Sociallight: Distributed cooperation learning towards network-wide traffic signal control,” in *Proceedings of the 2023 International Conference on Autonomous Agents and Multiagent Systems*, 2023, pp. 1551–1559.
- [4] Y. Zhang, **Damani, Mehul**, and G. Sartoretti, “Multi-agent traffic signal control via distributed rl with spatial and temporal feature extraction,” in *International Conference on Autonomous Agents and Multiagent Systems*, Springer, 2022, pp. 106–113.
- [5] Y. Wang, **M. Damani**, P. Wang, *et al.*, “Distributed reinforcement learning for robot teams: A review,” *Current Robotics Reports*, Sep. 2022.
- [6] **M. Damani**, Z. Luo, E. Wenzel, *et al.*, “Primal2: Pathfinding via reinforcement and imitation multi-agent learning - lifelong,” *IEEE Robotics and Automation Letters*, vol. 6, no. 2, pp. 2666–2673, 2021. DOI: 10.1109/LRA.2021.3062803.
- [7] F. Laurent, M. Schneider, C. Scheller, *et al.*, “Flatland competition 2020: Mapf and marl for efficient train coordination on a grid world,” in *Proceedings of the NeurIPS 2020 Competition and Demonstration Track*, ser. Proceedings of Machine Learning Research, vol. 133, PMLR, Jun. 2021, pp. 275–301.

PROJECTS

- **Adversarial Vulnerabilities of CLIP** April 2023 - May 2023
 - Generated perceptible, universal perturbations through gradient descent techniques, resulting in the misclassification of perturbed images by OpenAI’s CLIP model.
- **MA-Sort** Oct 2022 - Dec 2023
 - Developed multi-agent RL environment to test the ability of RL agents to replicate the emergence of dominance hierarchies in animal social groups.

- **Vigilant Bot** January 2020
 - Created RNN-based embedded hardware device to detect distress calls conveyed through complex hand gestures.
- **Vertical Take-off & Landing Aircraft (VTOL)** August 2019 - May 2020
 - Conceptualized, designed, assembled and tested an electric Vertical Take-off and Landing aircraft (VTOL) prototype.
- **Optimal Debris Deorbiting System** August 2019 - December 2019
 - Devised mission concept report to deorbit space debris from low-earth orbit (LEO) using bidirectional ion thrusters.

SKILLS

- **Languages:** Python, C, MATLAB
- **ML Frameworks:** TensorFlow, Torch, Ray, wandb
- **Others:** Conda, Docker, Git, Linux, Slurm

HONORS AND AWARDS

- Vicom Book Prize 2019
- Dean's List (Top 5% of cohort) 2018-19, 2019-20
- Invited Tedx speaker on **Black Holes and Time Travel** 2017
- Kishore Vaigyanik Protsahan Yojana Scholar (Awarded by Department of Science and Technology, India) 2017
- National Talent Search Scholar (Awarded by National Council on Educational Research, India) 2017

REVIEWING

- International Conference on Learning Representations (ICLR) 2023
- International Conference on Robotics and Automation (ICRA) 2021-2023
- International Conference on Intelligent Robots and Systems (IROS) 2023
- International Conference on Machine Learning (ICML) 2023
- Conference on Neural Information Processing Systems (NeurIPS) 2022
- Association for the Advancement of Artificial Intelligence (AAAI) 2022