Mehul Damani

Email: damanimehul24@gmail.com
Mobile: (857)706-9303
Portfolio: damanimehul.github.io
Github: github.com/damanimehul

Research Interests: Reinforcement Learning, Robotics and Vision

Education

- **Massachusetts Institute of Technology** — Cambridge,MA
  Ph.D. in Electrical Engineering and Computer Science — *August 2022 - Present*
- **Nanyang Technological University** — Singapore
  Bachelor of Mechanical Engineering, Minor in Mathematics — *2018 - 2022*
  ***GPA:** 4.74/5 - Honours (Highest Distinction) ;*

Experience

- **Robot Learning Lab, CILVR Cluster, New York University** — Remote
  Research Intern, advised by Lerrel Pinto — *January 2021 - Present*
  - Developing automatic curriculum generation methods which dynamically modify task and goal distributions for deep reinforcement learning agents in an attempt to achieve improved sample efficiency and generalization
  - Running large batch experiments on a multitude of robotic reinforcement learning environments such as Fetch,Hand and Ant using slurm scripting on NYU's Greene supercomputer
- **Multi-Agent Robotic Motion Lab, National University of Singapore** — Singapore
  Research Intern, advised by Guillaume Sartoretti — *April 2020 - July 2022*
  - Developed decentralized reinforcement learning solutions for applications in multi-agent robotics
  - Implemented reinforcement learning methods to solve multi vehicle routing problems on dense railway networks and achieved fourth position in the **NeurIPS 2020 Flatland Challenge**
  - Co-authored 2 papers, open-sourced code with 70+ 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. Wang, Y. *et al.* Distributed Reinforcement Learning for Robot Teams: A Review. *arXiv preprint arXiv:2204.03516* (2022).
2. **Damani**, **M.** *et al.* PRIMAL2: Pathfinding Via Reinforcement and Imitation Multi-Agent Learning - Lifelong. *IEEE Robotics and Automation Letters* **6,** 2666–2673 (2021).
3. Laurent, F. *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* **133** (PMLR, June 2021), 275–301.

Skills

- **Languages:** Python, C, Bash, MATLAB
- **ML Frameworks:** Scikit, TensorFlow, Keras, Torch, wandb
- **Others:** Conda, Docker, Git, Linux, Slurm (hpc), Latex, Arduino

Projects

- **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

Honors, Awards and Service

- Reviewer for ICRA 2020
- Dean's List (Year 1 and Year 2)
- Awarded Vicom Book Prize for being top scorer in MA2007: Thermodynamics
- Best Science Student - October, 2017
- Delivered Tedx talk on **Black Holes and Time Travel** - June, 2017
- Kishore Vaigyanik Protsahan Yojana (KVPY) Scholar - March, 2017
- National Talent Search Scholar (NTSE) - May, 2016