Harsh Satija

School of Computer Science
McGill University

harsh.satija@mail.mcgill.ca
hercky.github.io

Education

Ph.D., Computer Science 2018 – Present
McGill University, Montréal, Canada
Advisor: Joelle Pineau

Master of Science, Computer Science 2015 – 2017
McGill University, Montréal, Canada
Advisor: Joelle Pineau
Thesis: Using Deep Reinforcement Learning for Online Machine Translation

B.Tech., Computer Science and Engineering 2009 – 2013
International Institute of Information Technology (IIIT), Hyderabad, India

Employment

Facebook AI Research, Canada 2018 – 2019
Research Assistant, PhD
Worked on fundamental Reinforcement Learning research problems including exploration, transfer learning and building algorithms with safety guarantees.

Google Research, USA 2017-2017
Research Intern
Worked on latent variable generative models for computer system optimization.

Sokrati, India 2014–2015
Data Scientist
Built real-time bidding agents and recommender systems at a digital advertising start-up.

Amazon, India 2013–2014
Software Engineer
Built management and monitoring web services for Amazon.com's merchants.

Scientific works

JOURNAL ARTICLES

1. **Group Fairness in Reinforcement Learning.**
   In *Transactions on Machine Learning Research (TMLR)*, 2023.
   An earlier version appreared in *European Workshop on Reinforcement Learning (EWRL), 2022 (Oral)*.
   H. Satija, A. Lazaric, M. Pirotta, and J. Pineau.

CONFERENCE ARTICLES

1. **Multi-Objective SPIBB: Seldonian Offline Policy Improvement with Safety Constraints in Finite MDPs.**
   In *Advances in Neural Information Processing Systems (NeurIPS)*, 2021.
   H. Satija, P. S. Thomas, J. Pineau, and R. Laroche.

2. **Locally Persistent Exploration in Continuous Control Tasks with Sparse Rewards.**
   In *International Conference for Machine Learning (ICML)*, 2021.
   S. Amin, M. Gomrokchi, H. Aboutalebi, H. Satija and D. Precup.

3. **Constrained Markov Decision Processes via Backward Value Functions.**
   In *International Conference for Machine Learning (ICML)*, 2020.
   H. Satija, P. Amortila, and J. Pineau.

4. **Randomized value functions via multiplicative normalizing flows.**
   In *Conference on Uncertainty in Artificial Intelligence (UAI)*, 2019.
   A. Touati, H. Satija, J. Romoff, J. Pineau, and P. Vincent.

WORKSHOP PUBLICATIONS

1. **Decoupling dynamics and reward for transfer learning.**
   International Conference on Learning Representations (ICLR), Workshop track, 2018.
   H. Satija*, A. Zhang*, J. Pineau.

2. **Simultaneous machine translation using deep reinforcement learning.**
   In *ICML Workshop on Abstraction in Reinforcement Learning*, 2016.
   H. Satija*, J. Pineau.

PRE-PRINTS

1. **A Survey of Exploration Methods in Reinforcement Learning.**
   Journal in review, arXiv:2109.00157.
   S. Amin, H. Satija, M. Gomrokchi, H. van Hoof, D. Precup.

PATENTS

1. **Disaggregating Latent Causes for Computer System Optimization.**
   Patent number: *US-10650001-B2*, 2020.
   M. Hashemi, P. Ranganathan, H. Satija.

Awards

IVADO Doctoral Excellence Scholarship 2021-2023

Service

ORGANIZER

- Responsible Decision Making in Dynamic Environments Workshop at ICML 2022

REVIEWER

- Conference on Neural Information Processing Systems (NeurIPS) 2020-22
- International Conference for Machine Learning (ICML) 2021-23
- International Conference on Learning Representations (ICLR) 2020-22
- Transactions on Machine Learning Research (TMLR) 2022-23

Teaching

I have been a Teaching Assistant at McGill University for:

- Reinforcement Learning, COMP-767 2019
- Probabilistic Graphical Models, COMP-767 2019
- Applied Machine Learning, COMP-551 2016-18
- Artificial Intelligence, COMP 424 2017