

# Harsh Satija

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🏠 [hercky.github.io](https://hercky.github.io)

## Education

<b>Ph.D.</b> , Computer Science <i>McGill University</i> , Montréal, Canada Advisor: Joelle Pineau	2018 – Present
<b>Master of Science</b> , Computer Science <i>McGill University</i> , Montréal, Canada Advisor: Joelle Pineau Thesis: Using Deep Reinforcement Learning for Online Machine Translation	2015 – 2017
<b>B.Tech.</b> , Computer Science and Engineering <i>International Institute of Information Technology (IIIT)</i> , Hyderabad, India	2009 – 2013

## Employment

<b>Facebook AI Research</b> , Canada <i>Research Assistant, PhD</i> Worked on fundamental Reinforcement Learning research problems including exploration, transfer learning and building algorithms with safety guarantees.	2018 – 2019
<b>Google Research</b> , USA <i>Research Intern</i> Worked on latent variable generative models for computer system optimization.	2017-2017
<b>Sokrati</b> , India <i>Data Scientist</i> Built real-time bidding agents and recommender systems at a digital advertising start-up.	2014–2015
<b>Amazon</b> , India <i>Software Engineer</i> Built management and monitoring web services for Amazon.com’s merchants.	2013–2014

## Scientific works

### JOURNAL ARTICLES

1. **Group Fairness in Reinforcement Learning.**  
In *Transactions on Machine Learning Research (TMLR)*, 2023.  
An earlier version appeared 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. Laroché.
2. **Locally Persistent Exploration in Continuous Control Tasks with Sparse Rewards.**  
In *International Conference for Machine Learning (ICML)*, 2021.  
S. Amin, M. Gomrokchi, H. Aboutaleb, 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.  
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](https://arxiv.org/abs/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