

ARUSHI JAIN

Mila, McGill University, Montreal, Canada

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RESEARCH INTERESTS

Reinforcement Learning (RL), Safety in RL, Exploration & Representation Learning, Molecular Drug Discovery using AI, AI4Science, Constrained MDPs, Personalization in LLMs.

EDUCATION

McGill University & Mila, Montreal, Canada

Ph.D., Computer Science

GPA: 4.00/4.00

Sept 2019 - Present

MSc, Computer Science

GPA: 4.00/4.00

Sept 2017 - Sept 2019

Supervisor: *Doina Precup*

Indraprastha Institute of Information Technology Delhi (IIIT-D), India

Bachelor of Technology, Computer Science and Engineering

GPA: 9.42/10.00

Aug 2012 - May 2016

AWARDS

- **Borealis AI Fellowship** Graduate scholarship awarded to 10 students all over the Canada. Press coverage by [McGill reporter](#), 2022
- **CRIM Scholarship** Awarded to two students annually by Bourse du Centre de Recherche Informatique de Montréal, 2018

SELECTED PUBLICATIONS

For full list, check out [website](#) and [google scholar](#) page.

1. **Adaptive Exploration for Data-Efficient General Value Function Evaluations**[\[Paper\]](#)
[Arushi Jain](#), Josiah Hanna, Doina Precup
NeurIPS 2024, EWRL 2024
2. **Towards Painless Policy Optimization for Constrained MDPs**[\[Paper\]](#)[\[Poster\]](#)[\[Slides\]](#)
[Arushi Jain](#), Sharan Vaswani, Reza Babanezhad, Csaba Szepesvari, Doina Precup
UAI 2022, RLDM 2022 [\[Paper\]](#)
3. **Variance Penalized On-Policy and Off-Policy Actor-Critic**[\[Paper\]](#)[\[Poster\]](#)[\[Slide\]](#)
[Arushi Jain](#), Gandharv Patil, Ayush Jain, Khimya Khetarpal, Doina Precup
AAAI 2021
4. **Safe Option-Critic: Learning Safety in the Option-Critic Architecture**[\[Paper\]](#)[\[Poster\]](#)[\[Slide\]](#)
[Arushi Jain](#), Khimya Khetarpal, and Doina Precup
KER Journal 2021, ICML Workshop 2018, NeurIPS Workshop 2019;

RESEARCH & WORK EXPERIENCE

Microsoft Research, Amsterdam

October 2024 - Jan 2025

Research Intern hosted by *Elise Van Der Pol*

Designing reinforcement learning methods to optimize molecular synthesis pathways for drug discovery, leveraging exploration methods in RL to identify novel, stable molecular structures.

Meta AI / Facebook AI Research (FAIR), Paris

October 2022 - Jan 2023

Research Intern hosted by Alessandro Lazaric

Developed theoretical and practical unsupervised representation learning (successor features) and exploration strategies for zero-shot RL.

Amazon, California

July 2022 - Sept 2022

Research Intern hosted by Abhijit Joshi

Developed batch off-policy RL solution to enhance recommender systems for long-term user satisfaction.

SPORTLOGiQ, Montreal

June 2019 - Sept 2019

Research Intern hosted by Norm Ferns

Worked on formally contrasting agents in Markov Decision Process by developing behavioral pseudo-metrics using *lax-bisimulation*.

Borealis AI, Edmonton

May 2018 - Aug 2018

Research Intern hosted by Nidhi Hedge

Designed safe and robust RL-based recommender systems for financial applications.

Microsoft Research (MSR), India

June 2016 - July 2017

Research Fellow mentored by Sundararajan Sellamanickam, Arun Iyer

Developed a [unsupervised hierarchical monitoring tool](#) for service diagnostics.

COMMITTEE & REVIEWER

Committee Roles: Mila Admission Committee (2021), Mila Lab Representative (2021-2022), McGill University Representative, Computer Science Graduate Society (2021-2022)

Reviewer: RLC 2024, ICML 2024, NeurIPS 2023, AAAI 2022, AISTATS 2022, Decision Awareness in RL Workshop (ICML 2022), ML Standards Workshop (ICLR 2022), WiML Workshop (NeurIPS 2018)

TECHNICAL SKILLS & COURSEWORK

Programming Languages: Python, Tensorflow, Pytorch

Coursework: Reinforcement Learning, Probabilistic Analysis of Algorithms, Applied ML, Theoretical ML, Probabilistic Graphical Modeling, Matrix Computation, Mathematical Foundation of ML, Reinforcement Learning and Optimal Control.