

# Amit Sinha

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Affiliations: Mila [🔗](#), CIM [🔗](#), Gerad [🔗](#)

## Research Interests

Machine learning ; reinforcement learning ; representation learning; multi-agent systems; robotics

## Education

<b>PhD</b>	<b>McGill University</b> , Electrical and computer engineering	Montréal, QC Jan 2021 – Dec 2025
	<ul style="list-style-type: none"> <li>GPA: 3.85/4.0</li> <li><b>Thesis:</b> Reinforcement learning in partially observable systems and multi-agent team-based systems</li> </ul>	
<b>MSc</b>	<b>McGill University</b> , Electrical and computer engineering	Montréal, QC Aug 2018 – Dec 2020
	<ul style="list-style-type: none"> <li>GPA: 4.0/4.0</li> <li><b>Thesis:</b> Reinforcement learning in partially observable environments using approximate information state (<a href="#">thesis</a> <a href="#">🔗</a>)</li> </ul>	
<b>BE</b>	<b>Birla Institute of Technology, Mesra</b> , Electrical and electronics engineering	Ranchi, India Aug 2013 – Jun 2017
	<ul style="list-style-type: none"> <li>GPA: 8.11/10.0</li> </ul>	

## Experience

<b>Adobe</b> , PhD Research Intern	Bangalore, India Jun 2025 – Aug 2025
<ul style="list-style-type: none"> <li>Development of document understanding AI assistant solutions in Adobe Acrobat Reader</li> </ul>	
<b>McGill University</b> , Research Assistant	Montréal, QC May 2019 - Dec 2025
<ul style="list-style-type: none"> <li>Reinforcement learning algorithms for partially observable systems and multi-agent systems</li> </ul>	
<b>Indian Institute of Science</b> , Project Assistant	Bangalore, India Aug 2017 - Aug 2018
<ul style="list-style-type: none"> <li>Automation in Volvo trucks for proximity detection through vehicle detection</li> <li>Creating reusable vision-based maps through simultaneous localization and mapping</li> </ul>	
<b>IBM Research Labs</b> , Research Intern	Bangalore, India May 2016 - Jul 2016
<ul style="list-style-type: none"> <li>Design of an IoT-based system for video-based activity detection using motion detection and face detection</li> </ul>	

## Publications

### ★ Highlights ★

- Periodic agent-state based Q-learning for POMDPs** ([paper](#) [🔗](#)) Dec 2024  
 38th Conference on Neural Information Processing Systems (Neurips 2024)  
 Amit Sinha, Matthieu Geist, Aditya Mahajan
- Agent-state based policies in POMDPs: Beyond belief-state MDPs** ([paper](#) [🔗](#)) Dec 2024  
 Tutorial paper in 63rd IEEE Conference on Decision and Control (CDC 2024)  
 Amit Sinha, Aditya Mahajan

- **Dealing With Non-stationarity in Decentralized Cooperative Multi-Agent Deep Reinforcement Learning via Multi-Timescale Learning** ([paper](#) [↗](#)) Aug 2023  
*2nd Conference on Lifelong Learning Agents (CoLLA 2023)*  
Hadi Nekoei, Akilesh Badrinaaraayanan, **Amit Sinha**, Mohammad Amini, Janarthanan Rajendran, Aditya Mahajan, Sarath Chandar
- **Approximate information state for approximate planning and reinforcement learning in partially observed systems** ([paper](#) [↗](#)) ([code](#) [↗](#)) Feb 2022  
*Journal of Machine Learning Research (JMLR)*  
Jayakumar Subramanian, **Amit Sinha**, Raihan Seraj, Aditya Mahajan

## Additional Publications

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- **Convergence of regularized agent-state Q-learning in POMDPs** ([paper](#) [↗](#)) Dec 2025  
*Conference on Decision and Control (CDC)*  
**Amit Sinha**, Matthieu Geist, Aditya Mahajan
- **On the sensitivity of restless bandits solutions to uncertainty in the models of the arms** ([paper](#) [↗](#)) Sep 2025  
*Annals of Operations Research (ANOR)*  
**Amit Sinha**, Aditya Mahajan
- **Asymmetric actor-critic with approximate information state** ([paper](#) [↗](#)) Dec 2023  
*Conference on Decision and Control (CDC)*  
**Amit Sinha**, Aditya Mahajan
- **Robustness and sample complexity of model-based MARL for general-sum Markov games** ([paper](#) [↗](#)) Dec 2023  
*Dynamic Games and Applications (DGAA)*  
Jayakumar Subramanian, **Amit Sinha**, Aditya Mahajan
- **An Approach Towards Automated Navigation of Vehicles Using Overhead Cameras** ([paper](#) [↗](#)) Dec 2017  
*IEEE International Conference on Computational Intelligence and Computing Research (ICCIC)*  
V. Sri Chakra Kumar, **Amit Sinha**, Pratheek P. Mallya, Nutanlata Nath

## Academic Achievements and Awards

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- Arthur Allan McAlear Fellowship (McGill) Jan 2021
- McGill Engineering Doctoral Award (McGill) Jan 2021
- Masters Top-Up award (McGill) Oct 2020
- FRQNT scholarship (Québec) May 2020
- Graduate Excellence Fellowship award (McGill) Aug 2018
- Qualified in Zonal Informatics Olympiad 2013. Jan 2013
- Qualified in the Karnataka Regional Mathematical Olympiad 2012. Jan 2012

## Volunteering

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- Volunteered to help in training sessions for athletes with disabilities for Olympiques spéciaux Québec. Jan 2020
- Volunteer to help new international students in the International Buddy Program at McGill University. Aug 2019
- Volunteered to help new students get acclimated to daily life around McGill University as a student facilitator. Aug 2019
- Volunteer at the International Conference of Robotics and Automation. May 2019