

Khimya Khetarpal

CONTACT INFORMATION	McGill University School of Computer Science Montreal, Canada	<i>E-mail:</i> khimya.khetarpal@mail.mcgill.ca <i>Website:</i> https://kkhetarpal.github.io/ <i>Publications:</i> Google Scholar
EDUCATION	McGill University , Montreal, Canada <i>Ph.D., Computer Science</i> GPA: 4.0/4.0, Advisor: Doina Precup	September, 2017-2022 (Expected)
	University of Florida , Gainesville, USA <i>Masters, Computer Engineering</i> GPA: 3.74/4.0, Advisor: Eakta Jain	August, 2014 - May 2016
	Vellore Institute of Technology , Vellore, India <i>Bachelor of Technology, Electronics and Communication Engineering</i> GPA: 8.96/10.0	July, 2007 - May 2011
RESEARCH EXPERIENCE	Microsoft Research , Montreal, Canada <i>Research Intern</i> Mentors: Harm van Seijen	Feb, 2022 - June 2022
	Microsoft Research , Cambridge, UK <i>Research Intern</i> Mentors: Katja Hoffman	Nov, 2021 - Jan 2022
	DeepMind , London, UK <i>Research Scientist Intern</i> Mentors: Tom Zahavy and Satinder Singh	June, 2021 - Oct 2021
	DeepMind , Montreal, Canada <i>Research Scientist Intern</i> Mentors: Gheorghe Comanici and Doina Precup	July, 2019 - Dec 2019
	University of Florida , Gainesville, USA <i>Research Scholar, Human Centered Computing Lab</i> Mentor: Eakta Jain	January, 2016 - June 2016
	University of Florida , Gainesville, USA <i>Research Scholar, Machine Intelligence Laboratory</i> Mentor: Eric Schwartz	August, 2014 - April 2015
	Indian Institute of Technology, Kanpur , India <i>Research Associate, Intelligent Systems Laboratory</i> Mentor: Laxmidhar Behera	January, 2013 - July, 2014
INDUSTRY EXPERIENCE	Intel , Arizona, USA <i>Perceptual Computing Software Engineer</i> Mentor: Farshad Akbhari	July, 2016 - June 2017
	Intel , Arizona, USA <i>Perceptual Computing Software Intern</i> Mentor: Farshad Akbhari	May, 2015 - December 2015
	Robert Bosch , Bangalore, India <i>Software Engineer</i> Mentor: Venkatesh Prasad	July, 2011 - December 2012
	DELPHI TCI - TIFAC , Vellore, India	December, 2010 - April 2011

Project Intern
Mentor: Sasi Kumar

HONORS & AWARDS

INTERNATIONAL	Rising Stars in EECS	2020
	“An Academic Career Workshop for Women”, UC Berkeley	
	Finalist, Three Minute Thesis (3MT) Competition, AAAI	2019
	“Learning Options with Interest Functions” AAAI Student Abstract	
	Scholarship Award, Doctoral Consortium, AAAI	2019
	One of 18 attendees, Mentor: Michael Littman	
	Best Paper Award, Lifelong Reinforcement Learning Workshop, ICML	2018
	3rd Price, “Attend Before you Act: Leveraging human visual attention for continual learning.”	
	Student Volunteer Award, ICML	2018
INSTITUTIONAL	McGill School of Computer Science Ph.D. Fellowship	2017
	Graduate Excellence Award to pursue a Ph.D. program in Computer Science	
	CIDSE Doctoral Fellowship Award, Arizona State University (declined)	2017
	Award for the first year of study to pursue a PhD degree in Computer Science	
	Graduate Research Assistantship Award, University of Florida (declined)	2017
	Award to pursue a PhD degree in Computer Science	
	Academic Achievement Award, University of Florida	2014
	Funding award in the form of a partial fee waiver during Masters	
	Best Outgoing Student Award, Nominee, VIT University	2011
	6 out of 300 students nominated for this award	
	Achievement Award, VIT University	2010, 2011
	University wide award for dedication in the game of basketball	
	Merit Scholarship, VIT University	2008, 2009
	One out of 60 students for academic excellence	
	Intellectual Award, by Dreamz (Education Society) Kanpur, India	2005
	City wide award for academic performance	

PUBLICATIONS

PREPRINTS	[P2] POMRL: No-Regret Learning-to-Plan with Increasing Horizons	
	Under Review 2022.	
	<u>Khimya Khetarpal*</u> , Claire Vernade*, Brendan O’Donoghue, Satinder Singh, Tom Zahavy	
	[P1] Paradox of Choice: On the Role of Attention in Reinforcement Learning	
	Under Review 2022.	
	<u>Khimya Khetarpal*</u> , Andrei Nica*, Doina Precup	
JOURNAL ARTICLES	[J3] Towards Continual Reinforcement Learning: A Review and Perspectives	
	<i>Journal of Artificial Intelligence Research (JAIR) 2022.</i>	
	<u>Khimya Khetarpal*</u> , Matthew Reimer*, Irina Rish, Doina Precup	
	[J2] Safe Option-Critic: Learning Safety in the Option-Critic Architecture	
	<i>Published in a special issue of The Knowledge Engineering Review, (KER) 2021.</i>	
	Also appeared <i>In Adaptive Learning Agents Workshop, (ICML) 2018</i>	
	Arushi Jain*, <u>Khimya Khetarpal*</u> , Doina Precup	

- [J1] **Creating segments and effects on comics by clustering gaze data**
ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM), 2017 [2.25 impact factor]
 Thirunarayanan Ishwarya, Khimya Khetarpal, Sanjeev Koppal, Olivier Le Meur, John Shea, Eakta Jain
- [C9] **Temporally Abstract Partial Models**
Neural Information Processing Systems (NeurIPS) 2021 [21% acceptance rate]
Khimya Khetarpal, Zafarali Ahmed, Gheorghe Comanici, Doina Precup
- [C8] **Learning Robust State Abstractions for Hidden-Parameter Block MDPs**
International Conference on Learning Representations (ICLR), 2021
 Amy Zhang, Shagun Sodhani, Khimya Khetarpal, Joelle Pineau [28.7% acceptance rate]
- [C7] **Self-Supervised Attention-Aware Reinforcement Learning**
AAAI Conference on Artificial Intelligence (AAAI) 2021
 Haiping Wu, Khimya Khetarpal, Doina Precup [21% acceptance rate]
- [C6] **Variance Penalized On-Policy and Off-Policy Actor-Critic**
AAAI Conference on Artificial Intelligence (AAAI) 2021
 Arushi Jain, Gandharv Patil, Ayush Jain, Khimya Khetarpal, Doina Precup [21% acceptance rate]
- [C5] **What can I do here? A Theory of Affordances in Reinforcement Learning**
International Conference on Machine Learning (ICML) 2020 [21.8% acceptance rate]
Featured in MIT Technology Review
Khimya Khetarpal, Zafarali Ahmed, Gheorghe Comanici, David Abel, Doina Precup
- [C4] **Options of Interest: Temporal Abstraction with Interest Functions**
AAAI Conference on Artificial Intelligence (AAAI) 2020 [20.6% acceptance rate]
Khimya Khetarpal, Martin Klissarov, Maxime Chevalier-Boisvert, Pierre-Luc Bacon, Doina Precup, *Also at Deep RL Workshop (NeurIPS) 2019*
- [C3] **Value Preserving State Action Abstractions**
International Conference on Artificial Intelligence and Statistics (AISTATS) 2020
 David Abel, Nathan Umbanhowar, Khimya Khetarpal, Dilip Arumugam, Doina Precup, Michael L. Littman [30% acceptance rate]
- [C2] **Variational State Encoding as Intrinsic Motivation in Reinforcement Learning**
The Multi-disciplinary Conference on Reinforcement Learning and Decision Making (RLDM) 2019
 Martin Klissarov*, Riashat Islam*, Khimya Khetarpal, Doina Precup
- [C1] **Mobile robot navigation using evolving neural controllers in unstructured environments.**
Advances in Control and Optimization of Dynamical Systems, IFAC Proceedings, 2014
 Awahan Patnaik, Khimya Khetarpal, Laxmidhar Behera

- [W7] **Sequoia: A Software Framework to Unify Continual Learning Research**
In Theory and Foundation of Continual Learning Workshop (ICML) 2021
 Fabrice Normandin, Florian Golemo, Oleksiy Ostapenko, Pau Rodriguez, Matthew D Riemer, Julio Hurtado, Khimya Khetarpal, Dominic Zhao, Ryan Lindeborg, Timothée Lesort, Laurent Charlin, Irina Rish, Massimo Caccia

- [W6] **Learning Options with Interest Functions**
In Proceedings of the AAAI Student Abstract and Poster Program (AAAI) 2019
Selected for 3 Minute Thesis (3MT) Finalist [29% acceptance rate]
Khimya Khetarpal, Doina Precup
- [W5] **Learning Generalized Temporal Abstractions Across Both Action and Perception**
In Proceedings of the 24th AAAI/SIGAI Doctoral Consortium (AAAI) 2019
Scholarship Awarded [29% acceptance rate]
Khimya Khetarpal
- [W4] **Attend Before you Act: Leveraging human visual attention for continual learning**
In Lifelong Learning: A Reinforcement Learning Approach Workshop (ICML) 2018
Best Paper Award-3rd Place
Khimya Khetarpal, Doina Precup
- [W3] **Environments for Lifelong Reinforcement Learning**
Continual Learning Workshop, (NeurIPS), 2018
Khimya Khetarpal*, Shagun Sodhani*, Sarath Chandar, Doina Precup
- [W2] **RE-EVALUATE: Reproducibility in Evaluating Reinforcement Learning Algorithms**
In Reproducibility in Machine Learning Workshop, (ICML) 2018
Khimya Khetarpal*, Zafarali Ahmed*, Andre Cianflone, Riashat Islam, Joelle Pineau
- [W1] **A preliminary benchmark of four saliency algorithms on comic art**
IEEE International Conference on Multimedia & Expo Workshops (ICMEW), 2016
Khimya Khetarpal, Eakta Jain

INVITED TALKS

Bridging State and Action: Towards Continual Reinforcement Learning	
RLAI Lab, University of Alberta, Edmonton	2022
Brown Robotics Lab, Brown University	2022
Microsoft Research, NYC	2022
Microsoft Research, Montreal	2022
Deepmind, Edmonton	2022
Google Research, India	2022
Temporally Abstract Partial Models	
Neural Information Processing Systems (NeurIPS), Online	2021
Reinforcement Learning-Sofa, Mila Montreal	2021
MSR RL Reading Group, Cambridge	2021
Deepmind, Montreal, Online	2021
Towards Continual Reinforcement Learning	
RIKEN Center for Advanced Intelligence Project	
Approximate Bayesian Inference Team (Japan), Online	2021
A Theory of Affordances in Reinforcement Learning	
International Conference on Machine Learning, Online	2020
Reinforcement Learning-Sofa, Mila Montreal	2020
Reinforcement Learning and Artificial Intelligence, University of Alberta	2020
Google Brain-DeepMind Tea Talk, Montreal	2019

	Options of Interest: Temporal Abstraction with Interest Functions	
	AAAI Conference on Artificial Intelligence (AAAI), New York	2020
	DeepMind, Hierarchical Reinforcement Learning Meeting, Montreal	2019
	Reinforcement Learning-Sofa, Mila Montreal	2019
	3 Minute Thesis (3MT) Competition Finalist (AAAI), Hawaii	2019
	Learning Generalized Temporal Abstractions Across Both Action and Perception	
	AAAI/SIGAI Doctoral Consortium (DC) at (AAAI), Hawaii	2019
	Attend Before you Act: Leveraging human visual attention for continual learning	
	In Lifelong Learning: A Reinforcement Learning Approach Workshop, (ICML), Stockholm	2019
	Introduction to Computer Vision	
	Second Informative Talks on Technical Topics (ITTT), McGill IEEE Student Branch, Montreal	2018
	Learning Visual Representations	
	Arizona State University, Active Perception Group, Tempe	2017
	Empowering high school girls in STEM	
	Women in Deep Learning, Deep Learning Summer School, University of Montreal	2016
	A preliminary benchmark of four saliency algorithms on comic art	
	IEEE International Conference on Multimedia & Expo Workshops (ICMEW), Seattle	2016
SERVICE & LEADERSHIP INITIATIVES	Peer Advising Office Hours - Cofounder	2021
	<i>Mila, Montreal</i>	
CHAIRING	Area Chair	2018
	<i>Women in Machine Learning (WiML), NeurIPS</i>	
WORKSHOP CHAIRING	Organizer	2022
	<i>All Things Attention: Bridging Different Perspectives on Attention at ACML.</i>	
	Organizer	2022
	<i>All Things Attention: Bridging Different Perspectives on Attention at NeurIPS.</i>	
	Lead Organizer	2021
	<i>Never Ending Reinforcement Learning at ICLR.</i>	
	Organizer	2021
	<i>Beyond the research paper at ICLR.</i>	
	Lead Organizer	2020
	<i>WiML ICML Un-Workshop Breakout Session Organizer on Continual Reinforcement Learning</i>	
	Lead Organizer	2019
	<i>Lifelong Learning: A Reinforcement Learning Approach (LLARLA) at RLDM</i>	
	Organizer	2019
	<i>Multi-Task and Lifelong Reinforcement Learning Workshop at ICML</i>	
PROGRAM COMMITTEES	Mila Admissions Committee	2020
	<i>Mila, Montreal</i>	
	Reviewer	2022

	<i>Journal of Machine Learning Research (JMLR)</i>	
	Reviewer <i>Transactions on Machine Learning Research (TMLR)</i>	2022
	Reviewer <i>International Conference on Learning Representations (ICLR)</i>	2020
	Reviewer <i>International Conference on Artificial Intelligence and Statistics (AISTATS)</i>	2021
	Reviewer <i>Conference on Neural Information Processing Systems (NeurIPS)</i>	2020-2022
	Reviewer for workshops in machine learning <i>Decision Awareness in Reinforcement Learning, ICML 2022</i> <i>Ecological Theory of Reinforcement Learning, NeurIPS 2021</i> <i>Deep Reinforcement Learning, NeurIPS 2020-2021</i> <i>ML Reproducibility Challenge, NeurIPS 2020</i> <i>Continual Learning, NeurIPS 2018</i> <i>AI4Social Good , NeurIPS 2018</i>	Active
TEACHING & MENTORING	Thomas Jiralerspong , Undergraduate, CS, McGill University Co-supervised with Doina Precup.	2022-2023
ADVISING	Gabriela , Masters, CS, McGill University Co-supervised with Doina Precup.	2021-2023
	Haiping Wu , Masters, CS, 2021, McGill University Co-authored [C7]. Co-supervised with Doina Precup.	2019-2021
TEACHING APPOINTMENTS	COMP-767 Reinforcement Learning , Teaching Assistant <i>Graduate Course, Computer Science, McGill University</i>	Winter 2020
	Reinforcement Learning , Lecturer <i>AI4Good Lab</i>	Summer 2020
	Reinforcement Learning , Invited Talk <i>IVADO Summer School</i>	Fall 2019
	Hierarchical Reinforcement Learning , Guest Lecturer <i>Management Studies, McGill University</i>	Winter 2019
	Deep Reinforcement Learning , Lecturer <i>AI4Good Lab</i>	Summer 2019
	Machine Learning , Teaching Assistant <i>AI4Good Lab</i>	Summer 2018
	COMP-208 Computers in Engineering , Teaching Assistant <i>Undergraduate Course, Computer Science, McGill University</i>	Winter 2018
DIVERSITY, EQUITY & INCLUSION	Super-Volunteer , Women in Machine Learning <i>Assisted and led initiatives for WiML on social media across multiple WiML venues</i>	2020-21
	Mentor , Mementor <i>Conference on Neural Information Processing Systems (NeurIPS)</i>	2021
	Volunteer , Techno Feminine Event: AI to change the world	2019
	Mentor , Skype a Scientist	2019
	Mentor , Women in Innovation and Artificial Intelligence <i>McGill Innovation Week,</i>	2017
	Judge , Engineering Projects in Community Service	

EPICS High Showcase, Arizona State University 2017

FIRST Robotics Competition, Mentor
University of Florida, Gainesville 2016

Volunteer, International Society for Technology in Education
VIT University Student Chapter 2007

Volunteer, Red Cross Youth
VIT University Chapter 2007

MEDIA COVERAGE **A Theory of Affordances in Reinforcement Learning**
[A concept in psychology is helping AI to better navigate our world](#), MIT Technology Review

Autonomous Mobile Robot – AUMORO
[UF robotics demo](#), The Gainesville Sun
[UF Engineers Display Intelligent Machines At Robot Demo Day](#), WUFT