Khimya Khetarpal

CONTACT INFORMATION	McGill University School of Computer Science Montreal, Canada	*E-mail:* khimya.khetarpal@mail.mcgill.ca *Website:* https://kkhetarpal.github.io/ *Google Scholar*

EDUCATION

McGill University, Montreal, Canada — September, 2017 - present
Ph.D., Computer Science
GPA: 4.0/4.0, Advisor: Doina Precup

University of Florida, Gainesville, USA — August, 2014 - May 2016
Masters, Computer Engineering
GPA: 3.74/4.0, Advisor: Eakta Jain

Vellore Institute of Technology, Vellore, India — July, 2007 - May 2011
Bachelor of Technology, Electronics and Communication Engineering
GPA: 8.96/10.0

RESEARCH EXPERIENCE

DeepMind, Montreal, Canada — July, 2019 - Dec 2019
Research Scientist Intern
Mentors: Gheorghe Comanici and Doina Precup

University of Florida, Gainesville, USA — January, 2016 - June 2016
Research Scholar, Human Centered Computing Lab
Mentor: Eakta Jain

University of Florida, Gainesville, USA — August, 2014 - April 2015
Research Scholar, Machine Intelligence Laboratory
Mentor: Eric Schwartz

Indian Institute of Technology, Kanpur, India — January, 2013 - July, 2014
Research Associate, Intelligent Systems Laboratory
Mentor: Laxmidhar Behera

INDUSTRY EXPERIENCE

Intel , Arizona, USA — July, 2016 - June 2017
Perceptual Computing Software Engineer
Mentor: Farshad Akbhari

Intel , Arizona, USA — May, 2015 - December 2015
Perceptual Computing Software Intern
Mentor: Farshad Akbhari

Robert Bosch, Bangalore, India — July, 2011 - December 2012
Software Engineer
Mentor: Venkatesh Prasad

DELPHI TCI - TIFAC , Vellore, India — December, 2010 - April 2011
Project Intern
Mentor: Sasi Kumar

HONORS AND AWARDS

Finalist, Three Minute Thesis (3MT) Competition, AAAI — 2019
"Learning Options with Interest Functions" AAAI Student Abstract

Scholarship Award, Doctoral Consortium, AAAI — 2019
Selected as a presenter in 24th AAAI/SIGAI Doctoral Consortium, Mentor: Michael Littman

Best Paper Award, Lifelong Reinforcement Learning Workshop, ICML — 2018

3rd Price for "Attend Before you Act: Leveraging human visual attention for continual learning."

Student Volunteer Award, ICML	2018

McGill School of Computer Science Ph.D. Fellowship   2017
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

PREPRINTS

[1] **Towards Continual Reinforcement Learning: A Review and Perspectives**
In Preparation
Khimya Khetarpal*, Matthew Reimer*, Irina Rish, Doina Precup

PUBLICATIONS

[2] **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

[3] **Options of Interest: Temporal Abstraction with Interest Functions**
In Proceedings of the 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*

[4] **Value Preserving State Action Abstractions**
International Conference on Artificial Intelligence and Statistics (AISTATS) 2020 [30% acceptance rate]
David Abel, Nathan Umbanhowar, **Khimya Khetarpal**, Dilip Arumugam, Doina Precup,
Michael L. Littman

[5] **Multi-Task Reinforcement Learning as a Hidden-Parameter Block MDP**
Theoretical Foundations of Reinforcement Learning Workshop (ICML), 2020
Amy Zhang, Shagun Sodhani, **Khimya Khetarpal**, Joelle Pineau

[6] **Learning Options with Interest Functions**
In Proceedings of the AAAI Student Abstract and Poster Program (AAAI) 2019 [29% acceptance rate]
3 Minute Thesis (3MT) Finalist
Khimya Khetarpal, Doina Precup

[7] **Learning Generalized Temporal Abstractions Across Both Action and Perception** [29%
acceptance rate]
In Proceedings of the 24th AAAI/SIGAI Doctoral Consortium (AAAI) 2019
Scholarship Awarded
Khimya Khetarpal

[8] **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

[9] **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

[10] **Environments for Lifelong Reinforcement Learning**
Continual Learning Workshop, (NeurIPS), 2018
Khimya Khetarpal*, Shagun Sodhani*, Sarath Chandar, Doina Precup

[11] **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

[12] **Safe Option-Critic: Learning Safety in the Option-Critic Architecture**
In Adaptive Learning Agents Workshop, (ICML) 2018
Under submission for consideration to be published in a special issue of The
Knowledge Engineering Review (Cambridge University Press journal).
Arushi Jain*, **Khimya Khetarpal***, Doina Precup

[13] **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

[14] **A preliminary benchmark of four saliency algorithms on comic art**
IEEE International Conference on Multimedia & Expo Workshops (ICMEW), 2016
Khimya Khetarpal, Eakta Jain

[15] **Mobile robot navigation using evolving neural controllers in unstructured environments.**
Advances in Control and Optimization of Dynamical Systems, IFAC Proceedings, 2014
Awhan Patnaik, **Khimya Khetarpal**, Laxmidhar Behera

INVITED TALKS	**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 AND LEADERSHIP	**Reviewer**	
	ICLR, NeurIPS, AAAI, AISTATS, AI4Social Good Workshop, Reproducibility Challenge	
	WiML ICML Un-Workshop Breakout Session Organizer	2020
	Continual Reinforcement Learning	
	RLDM Workshop Organizer	2019
	Lifelong Learning: A Reinforcement Learning Approach (LLARLA)	
	ICML Workshop Organizer	2019
	Multi-Task and Lifelong Reinforcement Learning Workshop	
	Area Chair	2018
	Women in Machine Learning (WiML), NeurIPS	
	Program Committee	2018
	Continual Learning Workshop, NeurIPS	

TEACHING EXPERIENCE	**COMP-767 Reinforcement Learning**, Teaching Assistant	
	Computer Science, McGill University	Winter 2020
	Reinforcement Learning, Lecturer	
	AI4Good Summer School	Summer 2020
	Reinforcement Learning, Invited Talk	
	IVADO Summer School	Fall 2019
	Hierarchical Reinforcement Learning, Guest Lecturer	
	Management Studies, McGill University	Winter 2019
	Deep Reinforcement Learning, Lecturer	
	AI4Good Summer School	Summer 2019
	Machine Learning, Teaching Assistant	
	AI4Good Summer School	Summer 2018
	COMP-208 Computers in Engineering, Teaching Assistant	
	Computer Science, McGill University	Winter 2018

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

OUTREACH	**Techno Feminine Event: AI to change the world**, Volunteer	2019
	Skye a scientist, Volunteer	2019
	Women in Innovation and Artificial Intelligence, Mentor	
	McGill Innovation Week	2017
	Engineering Projects in Community Service, Judge	
	Arizona State University	2017
	FIRST Robotics Competition, Mentor	
	Roaring Riptide, Gainesville	2016
	International Society for Technology in Education, Volunteer	
	VIT University Student Chapter	2007
	Red Cross Youth, Volunteer	
	VIT University Chapter	2007