Khimya Khetarpal

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

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

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

PREPRINTS

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

[2] **Temporally Abstract Partial Models**
Under Review
Khimya Khetarpal, Gheorghe Comanici, Doina Precup

PUBLICATIONS

[3] **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

[4] **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*

[5] **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]

[6] **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

[7] **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

[8] **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

[9] **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

[10] **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

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

[12] **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

[13] **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

[14] **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

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

[16] **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

Mentoring — 2020
Haiping Wu (McGill Masters), Gabriela Moisescu-Pareja (McGill Undergraduate)

Reviewer
ICLR, NeurIPS, AISTATS, AI4Social Good Workshop, Reproducibility Challenge, Deep RL Workshop

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 Lab — 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 Lab — Summer 2019

Machine Learning, Teaching Assistant
AI4Good Lab — 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	**Graduate School Applications**, Mentor	2020
	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 *University of Florida, Gainesville*	2016
	International Society for Technology in Education, Volunteer *VIT University Student Chapter*	2007
	Red Cross Youth, Volunteer *VIT University Chapter*	2007