

Jean Harb

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Education

McGill University

Ph.D., Computer Science, 2016-Present

Supervisor: Doina Precup

Fields: Machine Learning, Reinforcement Learning, Deep Learning

McGill University

M.S., Computer Science, 2014-2016

Supervisor: Doina Precup

GPA: 3.88/4.0

HEC Montreal

B.B.A., Double Major in Finance and Economics, 2008-2013

GPA: 3.51/4.3

Master's Thesis

Learning Options in Deep Reinforcement Learning

Developed and applied the Option-Critic framework for the Atari 2600 environment. This allows a reinforcement learning agent to automatically learn temporally extended actions, while still maximizing the expected return.

Work Experience

Research Intern

OpenAI, Spring 2017

Worked on hierarchical reinforcement learning and multi-agent communication in the Deep Reinforcement Learning setting. This research allowed multiple agents to learn to communicate to solve tasks more efficiently by coordinating.

Research Intern

Maluuba (now Microsoft), 2015

Created a deep learning model using recurrent neural networks to automate the learning process of a personal virtual assistant. This improved natural language understanding capabilities and allowed for easier domain growth.

Awards

Grad Excellence Award, McGill University

Award for new Ph.D. students with outstanding performance during their Master's degree.

Languages and Skills

French (native), English (fluent)

Python, Theano, Tensorflow, Java

Publications
and Preprints

**When Waiting is not an Option : Learning Options with a
Deliberation Cost**

Jean Harb*, Pierre-Luc Bacon*, Martin Klissarov, Doina Precup
Thirty-Second AAAI Conference on Artificial Intelligence (AAAI), 2018

**Multi-Agent Actor-Critic for Mixed Cooperative-Competitive
Environments**

Ryan Lowe*, Yi Wu*, Aviv Tamar, Jean Harb, Pieter Abbeel, Igor Mordatch
Neural Information Processing Systems (NIPS), 2017

Asynchronous Advantage Option-Critic with Deliberation Costs

Jean Harb, Doina Precup
Reinforcement Learning and Decision Making (RLDM), 2017

The Option-Critic Architecture

Pierre-Luc Bacon, Jean Harb, Doina Precup
Thirty-First AAAI Conference on Artificial Intelligence (AAAI), 2017

Outstanding Student Paper Award

**Investigating Recurrence and Eligibility Traces in Deep
Q-Networks**

Jean Harb, Doina Precup
NIPS 2016, Deep Reinforcement Learning Workshop