Marlos C. Machado

Curriculum vitae

Contact Information

University of Alberta
Edmonton, AB
Canada T5J 3B1

✉ machado@ualberta.ca
https://cs.ualberta.ca/~machado
mcmachado

Research Interests

Artificial intelligence. Specifically, machine learning, reinforcement learning, representation learning, and real-world applications of all of those.

Research Positions

Assistant Professor 2023 – Present
Adjunct Professor 2021 – 2023
Canada CIFAR AI Chair
Alberta Machine Intelligence Institute (Amii) Fellow
Department of Computing Science, University of Alberta

Fellow in Residence 2023 – 2023
Alberta Machine Intelligence Institute (Amii)

Senior Research Scientist 2021 – 2023
DeepMind

Research Scientist 2019 – 2021
Google Research, Brain Team

Education

Doctor of Philosophy in Computing Science 2013 – 2019
University of Alberta, Canada
Advisors: Michael Bowling and Marc G. Bellemare
Nominated for Ph.D. Outstanding Thesis Award

Master of Science in Computer Science 2011 – 2013
Universidade Federal de Minas Gerais, Brazil
Advisors: Luiz Chaimowicz and Gisele L. Pappa
Winner of the M.Sc. Early Achievement Award

Bachelor of Science in Computer Science 2006 – 2010
Universidade Federal de Minas Gerais, Brazil
First Class Honors

Publications

Preprints

[CoRR-1] E. Meyer, A. White, M. C. Machado. Harnessing Discrete Representations For Continual Reinforcement Learning. *CoRR abs* 2312.01203, 2023. [Under review at RLC]

[CoRR-2] A. Lewandowski, H. Tanaka, D. Schuurmans, M. C. Machado. Curvature Explains Loss of Plasticity. *CoRR abs* 2312.00246, 2023. [In preparation]

[CoRR-3] S. Pramanik, E. Elelimy, M. C. Machado, A. White. Recurrent Linear Transformers. *CoRR abs* 2310.15719, 2023. [In preparation]

Journal Articles

[AIJ-2] H. Wang, E. Miahi, M. White, M. C. Machado, Z. Abbas, R. Kumaraswamy, V. Liu, A. White. Investigating the Properties of Neural Network Representations in Reinforcement Learning. *Artificial Intelligence*, 2024.

[MLJ-1] M. K. Janjua, H. Shah, M. White, E. Miahi, M. C. Machado, A. White. GVFs in the Real World: Making Predictions Online for Water Treatment". *Machine Learning*, 2023.

[AIJ-1] R. S. Sutton, M. C. Machado, G. Z. Holland, D. Szepesvari, F. Timbers, B. Tanner, A. White. Reward-Respecting Subtasks for Model-Based Reinforcement Learning. *Artificial Intelligence*, 2023.

[TMLR-1] R. Y. Tao, A. White, M. C. Machado. Agent-State Construction with Auxiliary Inputs. *Transactions on Machine Learning Research*, 2023.

[JMLR-2] M. C. Machado, A. Barreto, D. Precup, M. Bowling. Temporal Abstraction in Reinforcement Learning with the Successor Representation. *Journal of Machine Learning Research*, 24(80):1–69, 2023.

[Nature-1] [Alphabetical order] M. G. Bellemare, S. Candido, P. S. Castro, J. Gong, M. C. Machado, S. Moitra, S. Ponda, Z. Wang. Autonomous Navigation of Stratospheric Balloons using Reinforcement Learning. *Nature* 588:77–82, 2020.

[JAIR-1] M. C. Machado, M. G. Bellemare, E. Talvitie, M. J. Hausknecht, M. Bowling. Revisiting the Arcade Learning Environment: Evaluation Protocols and Open Problems for General Agents. *Journal of Artificial Intelligence Research* 61:523–562, 2018.

[JMLR-1] H. van Seijen, A. R. Mahmood, P. M. Pilarksi, M. C. Machado, R. S. Sutton. True Online Temporal-Difference Learning. *Journal of Machine Learning Research* 17(145):1–40, 2016.

[CiE-1] R. L. F. Cunha, M. C. Machado, L. Chaimowicz. RTSmate: Towards an Advice System for RTS Games. *ACM Computers in Entertainment*, 12(1):1–20, 2014.

Refereed Conference Articles[1]

[ICML-5] B. Daley, M. White, M. C. Machado. Compound Returns Reduce Variance in Reinforcement Learning. *International Conference on Machine Learning*, 2024. [27.5% accept. rate]

[ICLR-5] D. Gomez, M. Bowling, M. C. Machado. Proper Laplacian Representation Learning. *International Conference on Learning Representations*, 2024. [31.0% accept. rate]

[1] In machine learning, conferences are full-paper reviewed, they typically have a 25% acceptance rate, they are as prestigious as the best journals in the area, and they are highly cited. Google Scholar, in their most recent report, for example, places ICLR and ICML as the 10th and 17th most cited publication venues *across all scientific disciplines*, with Nature being the 1st.

[ICML-4] B. Daley, M. White, C. Amato, M. C. Machado. Trajectory-Aware Eligibility Traces for Off-Policy Reinforcement Learning. *International Conference on Machine Learning*, 2023. [27.9% accept. rate]

[ICML-3] M. Klissarov, M. C. Machado. Deep Laplacian-based Options for Temporally-Extended Exploration. *International Conference on Machine Learning*, 2023. [27.9% accept. rate]

[CoLLAs-1] Z. Abbas, R. Zhao, J. Modayil, A. White, M. C. Machado. Loss of Plasticity in Continual Deep Reinforcement Learning. *Conference on Lifelong Learning Agents*, Oral, 2023. [undisclosed accept. rate, top 21.4% for oral presentation]

[UAI-1] A. Erraqabi, M. C. Machado, M. Zhao, S. Sukhbaatar, A. Lazaric, L. Denoyer, Y. Bengio: Temporal Abstractions-Augmented Temporally Contrastive Learning: An Alternative to the Laplacian in RL. *Conference on Uncertainty in Artificial Intelligence*, 2022. [32.3% accept. rate]

[AISTATS-1] S. Vaswani, O. Bachem, S. Totaro, R. Müller, S. Garg, M. Geist, M. C. Machado, P. S. Castro, N. Le Roux. A General Class of Surrogate Functions for Stable and Efficient Reinforcement Learning. *International Conference on Artificial Intelligence and Statistics*, Oral, 2022. **Best Paper Honorable Mention.** [29.2% overall accept. rate, 2.6% spotlight accept. rate, 0.2% best paper nominee]

[ICML-2] [Double 1st author] W. Chung, V. Thomas, M. C. Machado, N. Le Roux. Beyond Variance Reduction: Understanding the True Impact of Baselines on Policy Optimization. *International Conference on Machine Learning*, 2021. [21.5% accept. rate]

[ICLR-4] R. Agarwal, M. C. Machado, P. S. Castro, M. G. Bellemare. Contrastive Behavioral Similarity Embeddings for Generalization in Reinforcement Learning. *International Conference on Learning Representations*, Spotlight, 2021. [28.7% overall accept. rate, 5.6% spotlight accept. rate]

[NeurIPS-1] D. Ghosh, M. C. Machado, N. Le Roux. An Operator View of Policy Gradient Methods. *Neural Information Processing Systems*, 2020. [20.1% accept. rate]

[AAAI-1] M. C. Machado, M. G. Bellemare, and M. Bowling. Count-Based Exploration with the Successor Representation. *AAAI Conference on Artificial Intelligence*, 2020. [20.6% accept. rate]

[ICLR-3] Y. Jinnai, J. W. Park, M. C. Machado, and G. Konidaris. Exploration in Reinforcement Learning with Deep Covering Options. *International Conference on Learning Representations*, 2020. [26.5% accept. rate]

[ICLR-2] A. A. Taiga, W. Fedus, M. C. Machado, A. Courville, M. G. Bellemare. On Bonus Based Exploration Methods In The Arcade Learning Environment. *International Conference on Learning Representations*, 2020. [26.5% accept. rate]

[ICLR-1] M. C. Machado, C. Rosenbaum, X. Guo, M. Liu, G. Tesauro, and M. Campbell. Eigenoption Discovery through the Deep Successor Representation.

International Conference on Learning Representations, 2018. [36.0% accept. rate]

[IROS-1] C. Sherstan, M. C. Machado, P. Pilarski. Accelerating Learning in Constructive Predictive Frameworks with the Successor Representation. *IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2018. [46.7% accept. rate]

[ICML-1] M. C. Machado, M. G. Bellemare, M. Bowling. A Laplacian Framework for Option Discovery in Reinforcement Learning. *International Conference on Machine Learning*, 2017. [25.4% accept. rate]

[AAMAS-1] Y. Liang, M. C. Machado, E. Talvitie, M. Bowling. State of the Art Control of Atari Games Using Shallow Reinforcement Learning. *International Conference on Autonomous Agents and Multiagent Systems*, 2016. **Best Paper Honorable Mention.** [24.9% accept. rate, 0.7% best paper nominee]

[AGI-1] C. Sherstan, A. White, M. C. Machado, P. Pilarski. Introspective Agents: Confidence Measures for General Value Functions. *Conference on Artificial General Intelligence*, 2016. [38.8% accept. rate]

[CIG-1] M. C. Machado, G. L. Pappa, L. Chaimowicz. A Binary Classification Approach for Automatic Preference Modeling of Virtual Agents in Civilization IV. *IEEE Conference on Computational Intelligence and Games*, 2012. [51.3% accept. rate]

[SBGames-3] M. C. Machado, G. L. Pappa, L. Chaimowicz. Characterizing and Modeling Agents in Digital Games. *Brazilian Symposium on Computer Games and Digital Entertainment*, 2012. [54% accept. rate]

[CGames-1] M. C. Machado, E. P. C. Fantini, L. Chaimowicz. Player Modeling: Towards a Common Taxonomy. *International Conference on Computer Games*, 2011. [75% accept. rate]

[SBGames-2] M. C. Machado, B. S. L. Rocha, L. Chaimowicz. Agents Behavior and Preferences Characterization in Civilization IV. *Brazilian Symposium on Computer Games and Digital Entertainment*, 2011. [49.2% accept. rate]

[SBGames-1] M. C. Machado, L. Chaimowicz. Combining Metaheuristics and CSP Algorithms to solve Sudoku. *Brazilian Symposium on Computer Games and Digital Entertainment*, 2011. [49.2% accept. rate]

Selected Magazine Articles, Extended Abstracts, and Workshop Papers
[Earlier versions of conference papers that were also presented at workshops are omitted]

[WS-5] A.A. Taiga, W. Fedus, M. C. Machado, A. Courville, M. G. Bellemeare. Benchmarking Bonus-Based Exploration Methods on the Arcade Learning Environment. *ICML Workshop on Exploration in Reinforcement Learning*, 2019. **Best Paper Award.**

[WS-4] J. Farebrother, M. C. Machado, M. Bowling. Generalization and Regularization in DQN. *NeurIPS Deep Reinforcement Learning Workshop & 4th Multidisciplinary Conference on Reinforcement Learning and Decision Making*, 2018.

[EA-1] M. C. Machado, M. G. Bellemare, E. Talvitie, M. J. Hausknecht, M. Bowling. Revisiting the Arcade Learning Environment: Evaluation Protocols and Open Problems for General Agents (Extended Abstract). *International Joint Conference on Artificial Intelligence (IJCAI)*, 2018. [Invited paper]

[WS-3] M. Liu, M. C. Machado, G. Tesauro, M. Campbell. The Eigenoption-Critic Framework. *NeurIPS Workshop on Hierarchical Reinforcement Learning*, 2017.

[WS-2] M. C. Machado, M. Bowling. Learning Purposeful Behaviour in the Absence of Rewards. *ICML Workshop on Abstraction in Reinforcement Learning*, 2016.

[M-1] S. V. Albrecht, J. Christopher L., D. L. Buckeridge, A. Botea, C. Caragea, C. H. Chi, T. Damoulas, B. N. Dilkina, E. Eaton, P. Fazli, S. Ganzfried, M. Lindauer, M. C. Machado, Y. Malitsky, G. Marcus, S. Meijer, F. Rossi, A. Shaban-Nejad, S. Thiébaux, M. M. Veloso, T. Walsh, C. Wang, J. Zhang, Y. Zheng. Reports from the 2015 AAAI Workshop Program. *AI Magazine* 36(2): 90-101, 2015.

[WS-1] M. C. Machado, S. Srinivasan, M. Bowling. Domain-Independent Optimistic Initialization for Reinforcement Learning. *AAAI Workshop on Learning for General Competency in Video Games*, 2015.

Patents

[P-2] R. Agarwal, M. C. Machado, P. S. Castro, M. G. Bellemare. Contrastive Behavioral Similarity Embeddings for Generalization in Reinforcement Learning. US Patent App. 17/487,769, 2023.

[P-1] S. Candido, J. Gong, M. G. Bellemare, M. C. Machado. Systems and Methods for Navigating Aerial Vehicles Using Deep Reinforcement Learning. US Patent App. 16/667,424, 2021.

Theses

[T-2] M. C. Machado. Efficient Exploration in Reinforcement Learning through Time-Based Representations. Ph.D. thesis, University of Alberta, 2019.

[T-1] M. C. Machado. A Methodology for Player Modeling based on Machine Learning. M.Sc. thesis, Universidade Federal de Minas Gerais, 2013.

Research Grants

Digital Research Alliance of Canada Resources 2024 – 2025
$56,000 in computational resources. Sole PI: "Representation-driven Discovery of Temporal Abstractions for Continual Reinforcement Learning".

NSERC Discovery Grant 2023 – 2028
$205,000 over five years. Sole PI: "Integrated Architectures for State and Temporal Abstraction in Reinforcement Learning".

NSERC Discovery Launch Supplement 2023 – 2024
$12,500 associated with "Integrated Architectures for State and Temporal Abstraction in Reinforcement Learning" (sole PI).

Canada CIFAR AI Catalyst Grant 2023 – 2025
$100,000 over two years. PI (w/ Samira E. Kahou and Ulrich Aïvodji): "Hiccups on the Road to Explainable Reinforcement Learning (XRL)".

Canada CIFAR AI Recruitment Chair 2021 – 2025
$500,000 over five years. Sole PI: "Discovering Temporal and Spatial Abstractions in Reinforcement Learning".

Awards and Honors

Organizations

Canada CIFAR AI Chair 2021
CIFAR Canada

Amii Fellow 2021
Alberta Machine Intelligence Institute (Amii)

Paper Distinctions

– Conferences

Best Paper Honorable Mention: AISTATS 2022
A General Class of Surrogate Functions for Stable and Efficient Reinforcement Learning

Best Paper Honorable Mention: AAMAS 2016
State of the Art Control of Atari Games Using Shallow Reinforcement Learning

– Workshops

Best Paper: ICML Workshop on Exploration in Reinforcement Learning 2019
Benchmarking Bonus-Based Exploration Methods on the Arcade Learning Environment [Preliminary version of the work ICLR-2]

Best Paper: ICML Workshop on Exploration in Reinforcement Learning 2018
Count-Based Exploration with the Successor Representation [Preliminary version of the work AAAI-1]

Reviewing / Area Chairing

Notable Area Chair 2023
International Conference on Learning Representations (ICLR)

Top 9% Highest-Scoring Reviewer 2022
International Conference on Learning Representations (ICLR)

Top 8% Highest-Scoring Reviewer 2021
Conference on Neural Information Processing Systems (NeurIPS)

Top 10% Highest-Scoring Reviewer 2020
Conference on Neural Information Processing Systems (NeurIPS)

Top 33% Highest-Scoring Reviewer 2020
International Conference on Machine Learning (ICML)

Top 10% Highest-Scoring Reviewer 2019
Conference on Neural Information Processing Systems (NeurIPS)

Top 10% Highest-Scoring Reviewer 2018
Conference on Neural Information Processing Systems (NeurIPS)

Top 10 Reviewer Award 2018
International Conference on Machine Learning (ICML)

Outstanding PC Member 2016
International Joint Conference on Artificial Intelligence (IJCAI)

University

Nomination for Ph.D. Outstanding Thesis Award 2019
University of Alberta

M.Sc. Early Achievement Award 2012
Universidade Federal de Minas Gerais (UFMG)

B.Sc. First Class Honors 2010
Universidade Federal de Minas Gerais (UFMG)

Scholarships

Provincial Alberta Innovates Technology Futures Scholarship 2013 – 2018
$126,000 over four years in Ph.D..

Brazilian Research Scholarship (CNPq) 2007 – 2008
5,400 BRL over eighteen months in B.Sc..

Supervision

Graduated Students

– M.Sc. students

Diego Gomez (w/ Michael Bowling) 2022 – 2023
Thesis: *Proper Laplacian Representation Learning*
Winner of the M.Sc. Early Achievement Award
Nominated for M.Sc. Outstanding Thesis Award

Edan Meyer (w/ Adam White) 2021 – 2023
Thesis: *Characterizing Discrete Representations for Reinforcement Learning*
With research internship at Huaweii.

Subhojeet Pramanik (w/ Adam White) 2021 – 2023
Thesis: *Recurrent Linear Transformers for Reinforcement Learning*
With research internship at Huaweii.

Erfan Miahi (w/ Martha White) 2021 – 2022
Thesis: *Feature Generalization in Deep RL: An Investigation into Representation Properties*

Ruo Yu (David) Tao (w/ Adam White) 2020 – 2022
Thesis: *Agent-State Construction with Auxiliary Inputs*
Nominated for M.Sc. Outstanding Thesis Award

Current Students

Because of my former adjunct status, my first students needed another professor as co-supervisor.

– Ph.D. students

Brett Daley (w/ Martha White) 2022 – present
With research internships at Sony AI and FAIR.

Prabhat Nagarajan (w/ Martha White), Ph.D. 2021 – present
With research internship at Sony AI.

Martin Klissarov (w/ Doina Precup at McGill University) 2020 – present
With research internships at Amazon, Microsoft, DeepMind, Meta, and Apple.

Alex Lewandowski (w/ Dale Schuurmans) 2019 – present
With research internship at Huaweii.

– M.Sc. students

Harshil Kotamreddy 2023 – present

Mohamed Ayman Mohamed 2023 – present

Marcos José 2023 – present

Visiting Students

Ronaldo Vieira, Ph.D., UFMG, Brazil 2023

Nicolas Carion, M.Sc., École Normale Supérieure de Lyon 2015

Undergraduate Research Assistants (University of Alberta)

Jesse Farebrother, B.Sc., University of Alberta 2018 – 2019

Ph.D. Supervisory Committee

Shibansh Dohare, University of Alberta 2023 – Present
(w/ R. Sutton, and A. R. Mahmood, supervisors)

Han Wang, University of Alberta 2022 – Present
(w/ M. White, and A. White, supervisors)

Chen Ma, University of Alberta 2021 – Present
(w/ R. Sutton, supervisor, and M. White)

Abhishek Naik, University of Alberta 2021 – 2024
(w/ R. Sutton, supervisor, and D. Schuurmans)

Ph.D. Thesis Examining Committee

Abhishek Naik, University of Alberta, University of Alberta 2024
Reinforcement Learning for Continuing Problems using Average Reward

M.Sc. Thesis Examining Committee

Mahdi Alikhasi, University of Alberta 2023
Sub-Neural Policies: Option Discovery via Neural Decomposition

Jiamin He, University of Alberta 2023
Consistent Emphatic Weightings for Off-Policy Reinforcement Learning

Esra'a Saleh, University of Alberta 2023
Should Models be Accurate?

Rohan Calum Nuttall, University of Alberta 2022
Uncertainty Methods in Active Reinforcement Learning

Archit Sakhadeo, University of Alberta 2021
No More Pesky Hyperparameters: Offline Hyperparameter Tuning For Reinforcement Learning

M.Sc. Thesis Examining Chair

Yousef Nademi, University of Alberta 2024
Advancing ECG Analysis through Machine Learning: A Study on Data Generation for ECG Classification and Feature Selection For Individual Survival Prediction

Spencer McIntosh von der Ohe, University of Alberta 2024
Exploring Methods for Generating and Evaluating Skill Targeted Reading Comprehension Questions

Tales Henrique Carvalho, University of Alberta 2023
Evaluating Search Spaces for Programmatic Policies in POMDPs

Interns (University of Alberta)

Kateryna Nekhomiazh, M.Sc., University of Toronto 2024
In partnership with NVIDIA. NVIDIA placed Kateryna in my group so I could host her.

Interns (DeepMind)

Martin Klissarov, Ph.D., McGill University 2022

Interns (Google Brain)

Taylor W. Killian, Ph.D., University of Toronto 2020

Valentin Thomas (w/ Nicolas Le Roux), Ph.D., Université de Montréal 2019

Research Internships

DeepMind 2018
Deep learning group w/ Vlad Mnih.

IBM Research – T.J. Watson Research Center 2017
AI Foundations group w/ Gerald Tesauro and Murray Campbell.

Microsoft Research – New York Lab 2016
ML group w/ Alekh Agarwal, Fernando Diaz, Miro Dudik, & Robert Schapire.

Vetta Labs LTDA 2009 – 2010

Teaching Assistant Experience

CMPUT 366: Intelligent Systems 2016

CMPUT 403: Practical Algorithmics 2016

DCC 865: Design and Analysis of Algorithms 2012

Software Engineering Experience

Avenue Code 2013

Synergia: Engenharia de Software e Sistemas 2011 – 2013

Ilusis Interactive Graphics 2010 – 2011

Selected Talks

Flying Balloons in the Stratosphere with AI

Jasper Dark Sky Festival – Jasper, Canada Oct. 2023

Representation-driven Option Discovery in Reinforcement Learning

Université de Montréal – Montréal, Canada Aug. 2023
Microsoft Research – New York City, USA Mar. 2023
University of Alberta – Edmonton, Canada Mar. 2023
McGill University – Montréal, Canada Feb. 2023

Empirical Aspects of Reinforcement Learning

CIFAR Deep Learning & RL Summer School – Montréal, Canada Jul. 2023

Don't Panic! Reinforcement Learning is Full of Magical Things Patiently Waiting for our Wits to Grow Sharper

Upper Bound – Edmonton, Canada May 2023

Temporal Abstraction in Reinf. Learning with the Successor Representation

Keynote at the Brazilian Conference on Intelligent Systems Nov. 2022
Microsoft Workshop on Reinforcement Learning, Forwards and Backwards: Insights from Neuroscience Oct. 2021
Stanford University – Stanford, USA Feb. 2020

Autonomous Navigation of Stratospheric Balloons using Reinforcement Learning

Amii AI Meetup – Edmonton, Canada Jun. 2022
University of Alberta – Edmonton, Canada Jan. 2021

How Atari Started the Golden Age of Reinforcement Learning

- Amii's AI Week (w/ Michael Bowling) – Edmonton, Canada May 2022

An Operator View of Policy Gradient Methods

University of Alberta – Edmonton, Canada Nov. 2020
DeepMind – London, UK Oct. 2020

Purposeful Exploration in Reinforcement Learning

Facebook AI Research – Montréal, Canada Oct. 2018
Google Brain – Montréal, Canada Oct. 2018
Microsoft Research – Montréal, Canada Oct. 2018

Count-Based Exploration with the Successor Representation

RLDM – Montréal, Canada Jul. 2019
ICML WS on Exploration in RL, Best paper – Stockholm, Sweden Jul. 2018

Eigenoption Discovery through Diffusion Models of Information Flow

McGill University – Montréal, Canada Nov. 2017
Microsoft Research – Montréal, Canada Nov. 2017

Revisiting the Arcade Learning Environment: Evaluation Protocols and Open Problems for General Agents

IJCAI, Journal track – Stockholm, Sweden Jul. 2018
IJCAI WS on Computer Games (Invited) – Stockholm, Sweden Jul. 2018
University of Alberta – Edmonton, Canada Oct. 2017

A Laplacian Framework for Option Discovery in Reinforcement Learning

ICML – Sydney, Australia Aug. 2017
ICML WS on Abstractions in RL – Sydney, Australia Aug. 2017
RLDM – Ann Arbor, USA Jun. 2017
University of Alberta – Edmonton, Canada May 2017

Exploration in Reinforcement Learning: The Quest for Purposeful Behavior

Univ. Federal de Minas Gerais (UFMG) – Belo Horizonte, Brazil Dec. 2016

The Arcade Learning Environment: What comes next?

IJCAI WS on General Intelligence and Game-Playing Agents (Invited) – New York, USA Jul. 2016

Service and Outreach

Journal Reviewer

ACM Transactions on Autonomous and Adaptive Systems
Adaptive Behavior
Expert Systems with Applications
IEEE Transactions on Computational Intelligence and AI in Games
IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)
Journal of Artificial Intelligence Research (JAIR)
Journal of Machine Learning Research (JMLR)
Machine Learning
Nature Reviews Psychology
Proceedings of the National Academy of Sciences (PNAS)
Transactions on Machine Learning Research (TMLR)

Awards Chair

Reinforcement Learning Conference (RLC) 2024
(with Roberta Raileanu)

Senior Area Chair

Reinforcement Learning Conference (RLC) 2024

Area Chair/Meta-Reviewer

Neural Information Processing Systems (NeurIPS) 2024
International Conference on Learning Representations (ICLR) 2021, 2023, 2024
Montreal AI Symposium (MAIS) 2020

Program Committee

International Conference on Machine Learning (ICML)	2018 – 2022
Neural Information Processing Systems (NeurIPS)	2018 – 2021
AAAI Conference on Artificial Intelligence (AAAI)	2018 – 2020
International Conference on Learning Representations (ICLR)	2020, 2022
International Joint Conference on Artificial Intelligence (IJCAI)	2016, 2017, 2019

Workshops Organized

AAAI Workshop on Learning for General Competency in Video Games 2015

Participation in Panels and Invited Meetings

The Royal Society of Canada and The Royal Society 2024
UK-Canada Frontiers of Science Meeting on Artificial Intelligence

CIFAR Deep Learning and RL Summer School 2023
w/ Sarath Chandar (Polytechnique Montreal), Wenhu Chen (University of Waterloo), Aishwarya Agrawal (University of Montreal), and Kira Lussier (CIFAR) as moderator.

Microsoft Summit Workshop on Reinforcement Learning, Forwards and Backwards: Insights from Neuroscience 2021
w/ Nathaniel Daw (Princeton University), Sam Gershman (Harvard University), Kimberly Stachenfeld (DeepMind), Geoff Gordon (Microsoft Research & Carnegie Mellon University), and Ida Momennejad (Microsoft Research) as moderator.

RLDM Workshop on Modeling Inductive Biases in Reinforcement Learning 2019
w/ Anne Collins (University of California Berkeley), Todd Gureckis (NYU), Anna Harutyunyan (DeepMind), and Doina Precup (McGill & DeepMind) as moderator.

ICML Workshop on Exploration in Reinforcement Learning 2018
w/ Ian Osband (DeepMind), Martha White (University of Alberta), Finale Doshi-Velez (Harvard), and Benjamin Van Roy (Stanford) as moderator.

Workshop (WS) Program Committee

NeurIPS WS on Lifelong Learning Machine Learning	2021
ICML WS on Lifelong Learning	2020
NeurIPS Reproducibility Challenge	2019
NeurIPS WS on Optimization Foundations for Reinforcement Learning	2019
Montreal AI Symposium	2019
ICML WS on Lifelong Learning: A Reinf. Learning Approach	2019
ICML WS on Lifelong Learning: A Reinf. Learning Approach	2018
AAMAS WS on Adaptive Learning Agents (ALA)	2018
NeurIPS WS on Hierarchical Reinforcement Learning	2017

University

President, Computing Science Graduate Student Association 2015 – 2016

CODE RELEASED

Arcade Learning Environment versions 0.5 – 0.6 2015 – 2017

LANGUAGES: C++ AND PYTHON. Multiple versions of the ALE, including the introduction of modes and stochasticity in the environment, new functions, and a Python interface. This code was developed collaboratively.

Source-code for multiple published papers 2016 – 2019

LANGUAGES: C++ AND PYTHON. Source-code of several published papers, including True-Online Sarsa, Blob-PROST features, Eigenoptions, $\text{DQN}_e^{\text{MMC}} + \text{SR}$, and a gridworld library.

Last update: May 2, 2024.