

Massimo Caccia

Curriculum Vitae

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Education

- 2017–present **PhD, Computer Science**, *Université of Montréal, Quebec Artificial Intelligence Institute (Mila)*.
Currently focused on Continual Learning
- 2013–2017 **Master of Science, Financial Engineering**, *HEC Montréal*.
Thesis: Option Pricing and Hedging for Discrete Time Autoregressive Hidden Markov Model
(awarded most innovative research project on derivatives and risk management in Canada)
- 2010–2013 **Bachelor of Science, Mathematics & Finance**, *Université de Montréal*.
With honors. Topics: Actuarial science, Financial mathematics, Statistics, and more

Publications

In Conference Proceedings

- 2023 **Massimo Caccia**, Jonas Mueller, Taesup Kim, Laurent Charlin, and Rasool Fakoor.
[Task-agnostic Continual Reinforcement learning: Gaining Insights and Overcoming Challenges](#).
In *CoLLAs - Conference on Lifelong Learning Agents*, 2023.
- 2022 Tongtong Wu, **Massimo Caccia**, Zhuang Li, Yuan-Fang Li, Guilin Qi, and Gholamreza Haffari.
[Pretrained language model in continual learning: A comparative study](#). In *ICLR - International Conference on Learning Representations*, 2022.
- 2021 Dominic Zhao, Johannes Von Oswald, Seijin Kobayashi, Simon Schug, **Massimo Caccia**, Nicolas Zucchet, and Joao Sacramento.
[Learning where to learn: Gradient sparsity in meta and continual learning](#). In *NeurIPS - Advances in Neural Information Processing Systems*, 2021.
- 2021 Pau Rodriguez, **Massimo Caccia**, Alexandre Lacoste, Lee Zamparo, Issam Laradji, Laurent Charlin, and David Vazquez.
[Beyond Trivial Counterfactual Explanations with Diverse Valuable Explanations](#). In *ICCV - Proceedings of the International Conference on Computer Vision*, 2021.
- 2021 Oleksiy Ostapenko, Pau Rodriguez, **Massimo Caccia**, and Laurent Charlin.
[Continual Learning via Local Module Composition](#). In *NeurIPS - Advances in Neural Information Processing Systems*, 2021.
- 2020 **Massimo Caccia**, Pau Rodriguez, Oleksiy Ostapenko, Fabrice Normandin, Min Lin, Lucas Caccia, Issam Laradji, Irina Rish, Alexandre Lacoste, David Vazquez, and Laurent Charlin.
[Online Fast Adaptation and Knowledge Accumulation: a New Approach to Continual Learning](#). In *NeurIPS - Advances in Neural Information Processing Systems*, 2020.
- 2020 **Massimo Caccia***, Lucas Caccia*, William Fedus, Hugo Larochelle, Joelle Pineau, and Laurent Charlin.
[Language GANs Falling Short](#). In *ICLR - International Conference on Learning Representation*, 2020.
- 2020 Alexandre Lacoste, Pau Rodríguez, Frédéric Branchaud-Charron, Parmida Atighehchian, **Massimo Caccia**, Issam Laradji, Alexandre Drouin, Matt Craddock, Laurent Charlin, and David Vázquez.
[Symbols: Probing Learning Algorithms with Synthetic Datasets](#). In *NeurIPS - Advances in Neural Information Processing Systems*, 2020.

- 2020 Lucas Caccia, Eugene Belilovsky, **Massimo Caccia**, and Joelle Pineau. [Online Learned Continual Compression with Adaptative Quantization Module](#). In *ICML - International Conference on Machine Learning*, 2020.
- 2019 Rahaf Aljundi*, **Massimo Caccia***, Lucas Caccia*, Eugene Belilovsky*, Min Lin, Laurent Charlin, and Tinne Tuytelaars. [Online Continual Learning with Maximal Interfered Retrieval](#). In *NeurIPS - Advances in Neural Information Processing Systems*, pages 11849–11860, 2019.

Book Chapters

- 2018 **Massimo Caccia** and Bruno Rémillard. [Option Pricing and Hedging for Discrete Time Autoregressive Hidden Markov Model](#). In *Innovations in Insurance, Risk- and Asset Management*. Springer Proceeding in Mathematics & Statistics, 2018.

Workshops Papers and Preprints

- 2023 **Massimo Caccia**, Alexandre Galashov, Arthur Douillard, Amal Rannen-Triki, Dushyant Rao, Michela Paganini, Laurent Charlin, Marc'Aurelio Ranzato, and Razvan Pascanu. [Towards Compute-optimal Transfer Learning](#). *ICLR Workshop on Sparsity in Neural Networks*, 2023.
- 2022 Jorg Bornschein, Alexandre Galashov, Ross Hemsley, Amal Rannen-Triki, Yutian Chen, Arslan Chaudhry, Xu Owen He, Arthur Douillard, **Massimo Caccia**, Qixuang Feng, ..., and Marc'Aurelio Ranzato. [NEVIS'22: A Stream of 100 Tasks Sampled from 30 Years of Computer Vision Research](#). *Submitted to JMLR*, 2022.
- 2021 Fabrice Normandin, Florian Golemo, Oleksiy Ostapenko, Pau Rodriguez, Matthew D Riemer, Julio Hurtado, Khimya Khetarpal, Dominic Zhao, Ryan Lindborg, Timothée Lesort, Laurent Charlin, Irina Rish, and **Massimo Caccia**. [Sequoia: A Software Framework to Unify Continual Learning Research](#). *ICML Workshop on Theory and Foundation of Continual Learning*, 2021.

Work Experience

- June 2022 – **Research Scientist Intern**, Deepmind .
- Nov 2022 Developing novel deep learning algorithms and benchmarks for large-scale continual learning.
- Aug. 2021 – **Research Scientist Intern**, Amazon Web Services .
- Jan 2022 Developing novel deep learning algorithms for continual reinforcement learning.
- Jan. 2020 – **Research Scientist Intern**, ElementAI  (now ServiceNow) .
- June 2021 Developing novel deep learning algorithms and benchmarks, particularly for continual and meta-learning.
- June 2017 – **Research Scientist Intern**, Spotify .
- Aug. 2017 Applying deep learning solutions for music recommendations and working on generative modelling.
- Sept. 2016 – **Research Scientist Intern**, Quebec Artificial Intelligence Institute .
- Dec. 2016 Developing novel deep learning algorithms for sequential recommendation systems.
- July 2015 – **Data Scientist**, LightspeedPOS .
- Sept. 2016 Using data mining, machine learning and data engineering for data-driven decision making.
- July 2014 – **Quantitative Analyst — Algorithmic Trading**, Nymbus Capital .
- Apr. 2015 Researching new algorithmic trading strategies in the futures market.

Jan. 2012 – ***Assistant Investment Consultant (internship)***, AON **AON**.

June 2012 Implementing a new business tool to accelerate the process of portfolio analysis for clients.

Organization

- 2023 **Conference on Lifelong Learning Agents (CoLLAs)**, *Sponsor Chair*.
In charge of raising money for the conference
- 2021 **CVPR Workshop on Continual Learning (CLVision)**, *Lead Challenge Chair*.
Leading the development of the challenge
- 2020 **CVPR Workshop on Continual Learning (CLVision)**, *Challenge Chair*.
Working on the development of the challenge

Invited Talks

- 2022 **Continual Reinforcement Learning**, Open World Lifelong Learning Course.
- 2022 **Task-Agnostic Continual Reinforcement Learning: In Praise of a Simple Baseline**, Numenta.
- 2022 **Task-Agnostic Continual Reinforcement Learning: In Praise of a Simple Baseline**, ContinualAI.
- 2020 **Online Fast Adaptation and Knowledge Accumulation: a New Approach to Continual Learning**, Numenta.
- 2020 **Online Fast Adaptation and Knowledge Accumulation: a New Approach to Continual Learning**, ContinualAI.
- 2019 **Online Continual Learning with Maximally Interfered Retrieval**, ICML 2019 Workshop on Continual Learning (Oral).
- 2018 **Language GANs Falling Short**, NeurIPS 2018 Workshop on Critiquing and Correcting Trends in Machine Learning (Oral).
- 2018 **Language GANs Falling Short**, Microsoft Research Montreal.

Awards & Scholarships

- 2019 **CIBPA Foundation Bursary 2019 - Merit**, Bursary awarded to promising Italian-Canadian students.
- 2016 **EY's Entrepreneurship Bursary**, EY's Bursary program aims to reward the students with the best business plan.
- 2015 **Health Promotion Innovation Challenge**, Hackaton focused on health promotion. Grand Prize for the application "SocialAngel".
- 2015 **The Canadian Derivatives Exchange Scholars Program**, Scholarship awarded to the most innovative research project on derivatives in Canada.
- 2015 **Financiere Sun Life Sclarship (M.Sc.)**, Bursary awarded to the students who are working on risk management related to insurance and who demonstrate exceptional skills and/or results.
- 2015 **Departement of Management Science Scholarship**, Awarded to top students in the department of Decision Sciences.
- 2014 **Fondation Francis et Genevieve Melançon Scholarship**, Awarded to top students at HEC Montréal.

Teaching Assistantship

- Fall, 2020 **Machine Learning**, HEC Montréal.
- Fall, 2019 **Machine Learning**, HEC Montréal.
- Winter, 2016 **Financial Mathematics**, HEC Montréal.
- Fall, 2015 **Statistics, Financial Mathematics**, HEC Montréal.
- Winter, 2015 **Calculus**, HEC Montréal.
- Fall, 2014 **Business Analytics**, HEC Montréal.

Reviewing

Conferences

- 2023 **ICLR, CoLLA, NeurIPS**.
- 2022 **ICLR, ICML, CoLLA, NeurIPS**.
- 2021 **ICLR** (Outstanding reviewer), **ICML, NeurIPS**.
- 2020 **ICLR** (Outstanding reviewer), **NeurIPS** (Top 10% reviewer), **IJCAI**.

Journals

- 2023 **TMLR**.
- 2022 **TMLR**.

Workshops

- 2023 **CLVISION (CVPR)**.
- 2022 **CoLLA, CLVISION (CVPR)**.
- 2022 **CoLLA, CLVISION (CVPR)**.
- 2021 **CLVISION (CVPR), Theory and Foundation of Continual Learning (ICML), MAIS**.
- 2020 **LifelongML (ICML), CL-ICML (ICML), CLVISION (CVPR), MAIS**.
- 2019 **MAIS**.