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

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. Synbols: 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

2022 **Massimo Caccia**, Jonas Mueller, Taesup Kim, Laurent Charlin, and Rasool Fakoor. Task-agnostic Continual Reinforcement Learning: In Praise of a Simple Baseline. In *CoLLA Workshop on Continual Learning*, 2022.

2021 Fabrice Normandin, Florian Golemo, Oleksiy Ostapenko, Pau Rodriguez, Matthew D Riemer, Julio Hurtado, Khimya Khetarpal, Dominic Zhao, Ryan Lindeborg, 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 – Nov 2022 **Research Scientist Intern,** Deepmind 🔵.
Developing novel deep learning algorithms and benchmarks for large-scale continual learning.

Aug. 2021 – Jan 2022 **Research Scientist Intern,** Amazon Web Services aws.
Developing novel deep learning algorithms for continual reinforcement learning.

Jan. 2020 – June 2021 **Research Scientist Intern,** ElementAI 🔲 (now ServiceNow) .
Developing novel deep learning algorithms and benchmarks, particularly for continual and meta-learning.

June 2017 – Aug. 2017 **Research Scientist Intern,** Spotify 🟢.
Applying deep learning solutions for music recommendations and working on generative modelling.

Sept. 2016 – Dec. 2016 **Research Scientist Intern,** Quebec Artificial Intelligence Institute 🟣Mila.
Developing novel deep learning algorithms for sequential recommendation systems.

July 2015 – Sept. 2016 **Data Scientist,** LightspeedPOS 🔥.
Using data mining, machine learning and data engineering for data-driven decision making.

July 2014 – Apr. 2015 **Quantitative Analyst — Algorithmic Trading,** Nymbus Capital nymbus..
Researching new algorithmic trading strategies in the futures market.

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

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

2022 **CoLLA**.

2021 **CLVISION (CVPR), Theory and Foundation of Continual Learning (ICML), MAIS**.

2020 **LifelongML (ICML), CL-ICML (ICML), CLVISION (CVPR), MAIS**.

2019 **MAIS**.