Maxime Wabartha

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RESEARCH INTERESTS

I focus on the theoretical aspects of learning representations for reinforcement learning. I am currently interested in representations that lead to interpretable algorithms, especially when used with (non-linear) function approximation.

EDUCATION

PhD in Computer Science, McGill University (Canada), 2019 - to date
Reinforcement learning, advised by Prof. Joelle Pineau

MSc in Applied Mathematics, Université Paris-Saclay (France), 2017-2018
Master "Mathématiques, Vision, Apprentissage" (MVA). Topic: *Learning diverse neural networks for improved exploration in deep reinforcement learning*

BS, MEng, École Centrale de Lille (France), 2010-2017

EXPERIENCE

Research intern, McGill University (Canada), May 2018 - Dec. 2018
Topic: *Exploration in deep reinforcement learning* [4]

Research intern, Polytechnique Montréal (Canada), May 2017 - Sep. 2017
Topic: *Semantic segmentation of the spinal cord* [5]

Business intelligence analyst, Shopwings (Australia), Jun. 2016 - Sep. 2016
Startup. Developing data analysis tools, project manager.

Junior financial auditor, Ernst&Young (France) Sep 2015 - Mar. 2016
Financial audit of industrial french companies.

Internal vice-president, Centrale Lille Projets (France). Apr. 2014 - Mar. 2015
Student-led consulting company (100k€ turn-over).
In charge of HR, project manager for 5 projects (∼15k€).

References available upon request

PUBLICATIONS

[1] **Wabartha, M.**, Durand, A., Francois-Lavet, V., & Pineau, J. (2020). *Handling Black Swan Events in Deep Learning with Diversely Extrapolated Neural Networks.* International Joint Conference on Artificial Intelligence, 2140-2147.

[2] Mangeat, G., Ouellette, R., **Wabartha, M.**, De Leener, B., Plattén, M., Danylaité Karrenbauer, V., ... & Granberg, T. (2020). *Machine Learning and Multiparametric Brain MRI to Differentiate Hereditary Diffuse Leukodystrophy with Spheroids from Multiple Sclerosis.* Journal of Neuroimaging.

[3] **Wabartha, M.**, Durand, A., François-Lavet, V., & Pineau, J. (2019). *Handling Black Swan Events in Deep Learning with Diversely Extrapolated Neural Networks.* NeurIPS Workshop on Safety and Robustness in Decision Making.

[4] **Wabartha, M.**, Durand, A., François-Lavet, V., & Pineau, J. (2018). *Sampling diverse neural networks for exploration in reinforcement learning.* NeurIPS Workshop on Bayesian Deep Learning.

[5] Zaimi, A.*, **Wabartha, M.***, Herman, V., Antonsanti, P. L., Perone, C. S., & Cohen-Adad, J. (2018). *AxonDeepSeg: automatic axon and myelin segmentation from microscopy data using convolutional neural networks.* Nature Scientific reports, 8(1), 1-11.

* denotes an equal contribution.

SKILLS
Programming: Python, Pytorch, TensorFlow
Software/OS: Git, Unix, Slurm, LaTeX, Matlab
Math: experience with Markov chains, calculus, probability, linear algebra

AWARDS
FRQNT scholarship, doctoral program 2021-2023
Fond de Recherche du Québec - Nature et Technologies.
Competitive provincial scholarship, 25% acceptance.

TALKS
Spotlight-like talk [1], IJCAI (online) Jan. 2021
Invited talk, NeuroPoly lab (Canada), Jun. 2019
Using diverse ensembles for out-of-distribution detection [3]

TEACHING
Teaching assistant, McGill University (Canada) Jan. 2020 - Apr. 2020
Artificial Intelligence (COMP424, 90h).
Office hours, tutorials, invigilating, grading.

SERVICE
Reviewer: Reproducibility Challenge ('19, '20, '21), Montreal AI Symposium ('20).
Volunteer helping with the organization of the RLDM conference in Montreal ('20).

LANGUAGES
French (native), English (fluent), Italian (conversational), German (conversational).

EXTRA-CURRICULAR
Practice of competitive badminton, 10 years