

## Maxime Wabartha

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maxwab.github.io

### RESEARCH INTERESTS

I am interested in the theoretical aspects of learning representations for reinforcement learning. I currently focus on representations that lead to stable or 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] 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.
- [2] **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.
- [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.

<b>SKILLS</b>	Programming: Python, Pytorch, TensorFlow Software/OS: Git, Unix, Slurm, L <sup>A</sup> T <sub>E</sub> X, Matlab Math: experience with Markov chains, calculus, probability, linear algebra	
<b>AWARDS</b>	FRQNT scholarship, doctoral program <i>Fond de Recherche du Québec - Nature et Technologies.</i> Competitive provincial scholarship, 25% acceptance.	2021-2023
<b>TALKS</b>	<b>5-minute spotlight-like talk</b> [2], IJCAI (online) <b>Invited talk</b> , NeuroPoly lab (Canada), <i>Using diverse ensembles for out-of-distribution detection</i> [3]	Jan. 2021 Jun. 2019
<b>TEACHING</b>	<b>Teaching assistant</b> , McGill University (Canada) <i>Artificial Intelligence (COMP424, 90h).</i> <i>Office hours, tutorials, invigilating, grading.</i>	Jan. 2020 - Apr. 2020
<b>SERVICE</b>	Reviewer for the Reproducibility Challenge (2019, 2020), Montreal AI Symposium (2020).	
<b>LANGUAGES</b>	French (native), English (fluent), Italian (conversational), German (conversational).	
<b>EXTRA-CURRICULAR</b>	Practice of competitive badminton, 10 years Misc. interests: Cinema, History, Technology.	