Aton Kamanda

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Education

University of Montreal - Mila — Montreal
Master of artificial intelligence, 3.95/4.3 GPA — *Sept. 2021 – Aug. 2023*

Experience

Research student in deep learning for software engineering — September 2021 – Aug. 2023
GEODES - Software engineering lab — *Canada, Montreal*

- I have been awarded a NSERC grant to research and develop new methods in deep learning. I have been presenting my work at MAIN 2022 an international conference at the crossroads of artificial intelligence and neuroscience.

Teacher assistant for a graduate deep reinforcement learning class — January 2023 – May 2023
Mila - Montreal institute for learning algorithms — *Canada, Montreal*

- I have been a teacher assistant for Mila's robot learning graduate course. More info on the course website.
- The course is focused on state-of-the-art research and is composed mainly of PhD students, I have been in charge of creating entirely new assignments with recent research papers, writing automated tests on Gradescope, grading students, and helping students in their research contributions for the final project.

Deep learning online course creation — September 2023 – January 2024
Caisses Desjardins — *Canada, Montreal*

- Desjardins Bank recruited me to develop a new online course about deep learning and its application to finance.
- The course is designed for undergrad computer science students and is composed of reinforcement learning, generative modeling,self-supervised learning, and graph neural networks.

Machine learning research engineer — September 2023 – Present
VMware — *Canada, Montreal*

- I have been given a IVADO grant of 15 000$ to work in partnership with VMware to leverage recent research findings to enhance the large language model (LLM) utilized internally, aimed at bolstering the efficiency of the software engineers for production
- Some noteworthy improvements include a reduction in inference time, advancements in continual learning, fine-tuning, prompt engineering, and the implementation of retrieval-augmented generation techniques. These enhancements collectively contribute to a more streamlined and effective utilization of the language model within their development processes.

Projects

Dreamer reimplementation | *Pytorch* — January 2022 - May 2022

* Reimplementation of the paper Dream to Control: Learning Behaviors by Latent Imagination in Pytorch.
* We managed to achieve the same result as the base tensorflow implementation and our main codebase has been reused for the paper Stochastic-Marginal-Actor-Critic accepted at ICLR 2023.

Why think step by step reproducibility study | *Pytorch* — October 2023 - February 2024

* Reproducibility study of Why think step by step? Reasoning emerges from the locality of experience accepted at NIPS 2023 for MLRC 2023.
* The goal is to challenge the statements of the paper with exhaustive ablations, hyperparameter search, and explore generalisability results on different data/models.

VICreg constrained optimization | *Pytorch* — November 2023 - February 2024

* Collaborating as an independent researcher with Jose Gallego-Posada and Lucas Maes on a paper on using VICreg with constrained optimization for ICML 2024 .
* I am in charge of the distributed computing part, VICreg is a compute-intensive architecture that requires proper parallelization, Meta will give us access to 32 V100 GPUs to run the experiments.

Technical strenghts

Languages : Python, Julia, C/C++, SQL
Developer Tools : Docker, Kubernetes , Spark, AWS
Librairies: Pytorch, Gym, Mujoco, Tensorflow, Pandas, NumPy, Triton