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

Machine learning intern — June 2021 – September 2021
UNamur — *Belgium, Namur*
- Developed a full-stack web application for code search using Flask and Pytorch.
- The application was designed as a search engine using CodeBERT to retrieve code snippets based on natural language queries, rank them by cosine similarity, and direct the user to the specific GitHub repo related to the snippet.

Research student in deep learning — 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.
- Poster and oral presentation of my master thesis on dual process theory at MAIN 2022.

Teacher assistant for a graduate robot learning class — January 2023 – May 2023
Mila - Montreal institute for learning algorithms — *Canada, Montreal*
- Course focused on state-of-the-art research and 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. More info on the course website.

Deep learning online course creation — September 2023 – January 2024
Caisses Desjardins — *Canada, Montreal*
- Online course designed for undergrad computer science students composed of reinforcement learning, generative modeling, self-supervised learning, and graph neural networks with an emphasis on finance application.

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

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 strengths

Languages : Python, Julia, C/C++, R, SQL
Developer Tools : Docker, Kubernetes
Data: Spark, Hadoop, Pandas, AWS, Google cloud platform, Azure
Machine learning: Pytorch, Jax, TensorFlow, MLFlow, NumPy, Gym, Mujoco