Aton Kamanda

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Education

University of Namur — Namur
Bachelor of computer science with distinction (minor in mathematics) — *Sept. 2018 – Sept. 2021*

University of Montreal — Montreal
Master of artificial intelligence, 3.925/4.3 GPA — *Sept. 2021 – Aug. 2023*

University of Montreal — Montreal
Ph.D artificial intelligence, advisor: Houari Sahraoui — *Sept. 2023 – May 2024*

Experience

Machine learning engineer — March 2024 – Today
AwakeAI - Mila incubated startup — *Canada, Montreal*

- Developped a method based on self-supervised learning for video.

Machine learning research engineer — May 2023 – February 2024
VMware — *Canada, Montreal*

- IVADO 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, achieving up to 11x increase in inference throughput with performance drops of only 2%, prompt engineering (e.g chain of thought/chain of code), and the implementation of retrieval-augmented generation using CodeLlama, Langchain, and ChromaDB.

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

- Course focused on 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. (Course website).

Machine learning intern — June 2021 – September 2021
SkalUP — *Belgium, Namur*

- Developped 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.

Publications

CodeUltraFeedback: LLM-as-a-Judge for coding preferences alignment | *ACM 2024* — March 2024

- Developed CodeUltraFeedback, a comprehensive preference dataset of 10,000 complex instructions aimed at tuning and aligning LLMs to user-defined coding preferences through AI feedback.
- Created CODAL-Bench, a benchmark for assessing LLM alignment with coding preferences, demonstrating that CodeLlama7B-Instruct, aligned through reinforcement learning from AI feedback with direct preference optimization (DPO) using CodeUltraFeedback's data, outperforms 34B LLMs on CODAL-Bench and improves functional correctness on HumanEval+

Technical strengths

Languages : Python, Julia, C/C++, R, SQL
Data & Developer Tools: Spark, Hadoop, Pandas, AWS, GCP, Azure, Kafka, Docker, Kubernetes
Machine learning: Pytorch, Jax, TensorFlow, MLFlow, LangChain, ChromaDB, NumPy, Gym, Mujoco, TensorRT, CUDA, Triton.