

# Aton Kamanda

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## EDUCATION

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### University of Namur

*Bachelor of computer science with distinction (minor in mathematics)*

Namur

Sept. 2018 – Sept. 2021

### University of Montreal

*Master of artificial intelligence, 3.925/4.3 GPA*

Montreal

Sept. 2021 – Aug. 2023

### University of Montreal

*Ph.D artificial intelligence, advisor: Houari Sahraoui*

Montreal

Sept. 2023 – May 2024

## EXPERIENCE

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### Machine learning engineer

*AwakeAI - Mila incubated startup*

March 2024 – Today

Canada, Montreal

- Developed a video understanding system based on V-JEPA for real-time activity recognition in nursing homes achieving state-of-the-art performance of 81% on the Toyota Smarthome benchmark.
- Demonstrated model adaptation skills by fine-tuning the V-JEPA architecture on proprietary data, resulting in 80% accuracy on complex action recognition tasks in real-world scenarios. Enhanced system capabilities by seamlessly integrating YOLOv8 and StrongSORT for robust multi-person tracking and action recognition.
- Implemented a highly scalable Kafka-based real-time video streaming pipeline, showcasing advanced optimization techniques that enabled processing of 100+ simultaneous camera streams on a single GPU at 90 frames per second.

### Machine Learning Research Engineer

*VMware*

May 2023 – February 2024

Montreal, Canada

- IVADO-VMware collaborative project to leverage cutting-edge research findings for enhancing the company's internal large language model (LLM), significantly boosting software engineer productivity in production.
- Achieved remarkable performance optimizations, including:
  - \* Up to 11x increase in inference throughput with only a 2% performance degradation
  - \* Implemented advanced prompt engineering techniques (e.g., chain of thought, chain of code)
  - \* Designed and deployed a state-of-the-art retrieval-augmented generation system utilizing CodeLlama, Langchain, and ChromaDB

### Teacher assistant for a graduate robot learning class

*Mila - Montreal institute for learning algorithms*

January 2023 – May 2023

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

*SkalUP*

June 2021 – September 2021

Belgium, Namur

- Developed 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

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### CodeUltraFeedback: LLM-as-a-Judge for coding preferences alignment | ACM 2024

March 2024

- Pioneered CodeUltraFeedback, a 10,000-instruction dataset for LLM alignment, and CODAL-Bench for assessing coding preferences; demonstrated that CodeLlama7B-Instruct, fine-tuned with this data using DPO, outperformed 34B LLMs on CODAL-Bench and improved HumanEval+ functional correctness.

## TECHNICAL STRENGTHS

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**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, Triton, NumPy, Gym, Mujoco, TensorRT