

# Ilia Alenabi

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## EDUCATION

### University of Waterloo

Honours **Computer Science**; **Artificial Intelligence Specialization**; **Statistics Minor**

Waterloo, Ontario

Sep 2022 – Aug 2026

## SKILLS

**Languages:** C/C++, Python, Golang, Rust, Scala, SQL, JavaScript

**Frameworks/Libraries:** Numpy, Pandas, PyTorch, Tensorflow, Langchain, Scikit-learn

**Tools/Platforms:** Git, Docker, Kubernetes, LLVM, MLIR, vLLM, DeepSpeed, Pinecone, MongoDB, Apache Airflow

## EXPERIENCE

### Compiler Engineer

Huawei Canada - Internship

Toronto, ON

Jan 2025 – Apr 2025

- Developed an **MLIR** pass to annotate attention layers with **sharding** metadata, optimizing **tensor distribution**
- Designed an **LLVM** pass for automated software cache creation, optimizing memory usage with only **5%** overhead
- Created a runtime system, enabling software cache functionality and calculating precise cache **lookup** overhead
- Analyzed **Redis**'s performance, identified hotspots, and implemented **prefetching** to reduce runtime by **20%**

### Senior Data Quality Specialist

Cohere - Part-time contract

Toronto, ON

Oct 2024 – Present

- Evaluated AI models' problem-solving skills, solving and correcting advanced **math** and **programming** questions

### Software Engineer

Questrade Financial Group. - Internship

Remote

Sep 2024 – Dec 2024

- Automated **MLOps** pipeline for **fine-tuning** and **retraining**, reducing redundant AI inference costs by **8%**
- Integrated **NLP** solutions—fine-tuned on **1000+** support tickets—into DevOps, supporting **200+** developers
- Processed **3 years** of developer interactions in multiple platforms, filtering and converting them into trainable data

### Data Scientist

Silverberry Group - Internship

Vancouver, BC

Apr 2023 – Apr 2024

- Maintained **200+** hours of audio/video in **Pinecone** vector stores utilizing **OpenAI** Whisper and **Hugging Face**
- Implemented a **U-Net** for diabetic wound segmentation and a classifier in **PyTorch**, achieving **92%** accuracy
- Developed an AI-driven **interactive agent** environment to simulate application UI behavior pre-production

## RESEARCH

### Machine Learning Researcher

University of Waterloo – **CompLING Lab**

Waterloo, ON

Apr 2025 – Aug 2025

- Analyzed **vision-language models**' natural language understanding, identifying biases in **cross-modal** reasoning

### Co-author

Pingoo.AI – **Building Trustworthy Generative AI for Diabetes Care**

Remote

Jan 2023 – Apr 2023

- Published in **Journal of Diabetes Science and Technology**, ranked in the **top 10%** of health sciences journals
- Developed a diabetes-focused **RAG** model using **Langchain** library in Python, and trained on over **700 articles**
- Reduced factual errors in AI output from **45%** to **1%** through **few-shot learning** and **prompt engineering**

## PROJECTS

### UW Course Planner | 🗓️ | 🔗

- Developed a course schedule tool using **Django/Next.js**, reducing planning time for **100+** active student users

### PQTree library | 🗓️

- Optimized SageMath's **PQTree** using **Rust** with multi-threading, increasing performance by **200%** in benchmarks

### UW Course Compass | 🗓️

- Built a course recommendation engine in **GoLang**, improving course selection speed and efficiency for students