



Ayrton Chilibeck

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Compiler Developer, Computer Architecture Researcher

Experience

Teaching Assistant, CMPUT 415, CMPUT 429/529

University of Alberta

September 2024 — April 2025 Edmonton AB, Canada

- Developed test infrastructure using python and CI/CD frameworks
- Helped students working with LLVM, MLIR, ANTLR, gem5 and C++
- Developed presentation materials for labs
- Contributed to testing, marking and verification software ([Github](#))

Research Intern, Compiler Driven Optimization Lab

University of Alberta

May 2024 — August 2024 Edmonton AB, Canada

- Developed course materials for Advanced Computer Architecture (CMPUT 429), transitioning the curriculum from ARM to RISC-V for simulation purposes.
- Created explanatory videos to enhance understanding of course content.
- Contributed to course development for Compiler Development (CMPUT 415), utilizing MLIR and LLVM 18 to build a fully functional programming language.
- Assisted junior researchers with questions, fostering a collaborative learning environment.
- Conducted research with the JAX ML framework, optimizing the JAX JIT compiler to improve the implementation of certain algorithms used in reinforcement learning.

Security Analyst

Centre Intégré de Santé et de Services Sociaux de l'Abitibi-Témiscamingue

September 2023 — October 2024 Amos QC, Canada

- Maintained and monitored security infrastructure to protect sensitive data.
- Developed internal utilities to facilitate easy infrastructure migrations and modifications
- Corresponded with software providers to ensure alignment with organizational needs.
- Managed projects, including the implementation of IPAM systems for regional device pools.
- Authored technical reports on infrastructure and technology changes, including cost analysis, risk analysis, and comparative studies of various software options.

Technician

Centre Intégré de Santé et de Services Sociaux de l'Abitibi-Témiscamingue

April 2022 — September 2023 Amos QC, Canada

Operator

Centre Intégré de Santé et de Services Sociaux de l'Abitibi-Témiscamingue

April 2021 — April 2022 Amos QC, Canada

Education

University of Alberta

Sep 2022 — April 2025 Edmonton AB, Canada

B.Sc. Honors Computer Science

Relevant course work

- CMPUT 415 - Construction of a compiler for the gazprea language in MLIR
- CMPUT 429 - Processor architecture and simulation using the GEM5 simulator
- CMPUT 401 - Test infrastructure and development in modern software pipelines

Projects

2JITsu

A comparative analysis of Deep Learning frameworks, presented at CASCON '24.

[Github](#)

Gazprea Language

A julia-like language used in the CMPUT 415 curriculum at the University of Alberta to teach compiler development.

[Language Specification](#)

PKL-Rust

A language binding for Apple's PKL configuration-as-code tool for rust.

[Github](#)

Skills

Languages

Python	●●●●●●
C	●●●●●●
C++	●●●●●●
Rust	●●●●●●
ARM	●●●●●●

Tools

Git	●●●●●●
CI/CD	●●●●●●

Environments

MLIR/LLVM	●●●●●●
Linux OS (Debian, Arch)	●●●●●●