

# JAKE EDMONSTONE

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## EDUCATION

University of Waterloo | GPA: 88.00

2022 – Expected 2027

Bachelor of Mathematics | Joint Computer Science and Pure Mathematics

Waterloo, ON

## EXPERIENCE

Software Engineer Co-op (Hybrid)

May 2025 – August 2025

Constant Contact Inc.

Kitchener, ON

- Developed and maintained customer-facing email delivery features using Next.js (frontend) and Java (backend).
- Collaborated on CI/CD pipelines with Jenkins and contributed to automated testing and code quality improvements.
- Participated in agile ceremonies, code reviews, and issue tracking using Git and Jira within a cross-functional team.

Full-stack Developer Co-op (On-site)

September 2024 – December 2024

BCS Automation Ltd.

Belleville, ON

- Developed and executed KQL queries in Azure Data Explorer to manage and analyze sensor data, establishing a robust data storage and querying solution where none previously existed.
- Designed and trained LSTM autoencoder models using PyTorch for anomaly detection, advancing research into identifying irregularities in time-series data.
- Designed and built a front-end interface for data visualization using Plotly.js, featuring interactive zoom, a data labeling tool, and a menu system, improving data exploration capabilities and usability.

Full-stack Developer Co-op (On-site)

January 2024 – April 2024

BCS Automation Ltd.

Belleville, ON

- Addressed query slowness by migrating to a NoSQL database (CosmosDB), implementing indexing and partitioning strategies to efficiently handle large-scale data, resulting in improved throughput.
- Implemented authentication using Microsoft Active Directory and C#, enhancing application security where none previously existed.
- Refactored the back-end API to adhere to best practices, ensuring proper use of HTTP methods (e.g. idempotent GET requests) and improving overall code maintainability.

## PROJECTS

WLP4 Compiler

C++, Make

- Designed and implemented a WLP4 compiler in C++ that converts high-level WLP4 code into MIPS assembly, using a modular architecture with components for scanning, parsing, type checking, and code generation.
- Applied theoretical computer science concepts, including regular expressions and maximal munch scanning for tokenization, LR(1) parsing for syntax tree construction, and context-sensitive analysis for semantic validation.

Chess

C++, X11, Make

- Implemented a fully functional chess game with four levels of computer difficulty and a graphical user interface for visual interaction.
- Highlighted proficiency in object-oriented design principles, including inheritance and polymorphism, to support large-scale modular development and code reusability.

Personal Website

HTML, CSS, JavaScript

- Created a portfolio website featuring my projects, including images/GIFs and repository links.

## EXTRA CURRICULARS

- Algebra Tutor at the University of Waterloo Mathematics Tutoring Center
- Volunteer tour guide for the Mathematics Society

## SKILLS

Languages: C++, C#, Python, SQL, KQL, JavaScript/TypeScript, HTML/CSS

Frameworks: React, ASP.NET

Developer Tools: Git, Microsoft Azure, VS Code, Visual Studio, Vim/Neovim

Libraries: PyTorch, Pandas, NumPy, Plotly.js