Maxwell Cruickshanks

Waterloo, ON, Canada

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Skills

C++, Go, Java, Python, SQL, JavaScript, AWS EC2/S3, LaTeX, Git, Unix, Scrum, Object-Oriented

Education

University of Waterloo — Sep 2022 – Present

Bachelor of Computer Science, Honours — Waterloo, ON

- **Cumulative GPA: 95.66% / 4.0 GPA**

Work Experience

Akuna Capital, LLC — Jun 2025 - Aug 2025

Incoming Software Engineer Intern - C++ — Chicago, IL

Lisplogics — May 2024 – Aug 2024

Data Scientist Intern - Algorithms and Machine Learning — Montreal, QC

- Optimized **car wash routing model** with **20% more cars washed** using **simulated annealing**
- **Improved accuracy 50%** with **LightGBM** by feature-engineering for **bike-rebalancing model**
- Technologies: **Go, Python, Grafana, Prometheus, AWS, OR-Tools, TypeScript**

Untether AI — May 2023 – Aug 2023

Compute Kernel Software Engineering Intern — Toronto, ON

- Created **Proof-of-Concept for saturating ports** with RISC-V chip for **8x throughput**
- Increased **throughput >400%** for compute kernels for ML layers (like upsample, convolution)
- Technologies: **Python, C++, SQL, Git, Unix, Scrum, PostgreSQL**

Centre for Education in Mathematics and Computer Science — Dec 2022 – Present

Canadian Computing Competition Committee Member

- Wrote problems for **Canadian IOI selection contests** (CCC/CCO) and proofread 10+ problems
- **Generated test data** and >10 solutions for problems using C++ Codeforces-style generators
- Technologies: **Python, C++, Java, LaTeX**

DMOJ: Modern Online Judge — May 2021 – Present

Site Moderator

- **Added 1000+ problems**, ensured consistency across the problem set
- Organized and **set 10+ contests**, each with **100+ contestants**
- Continually **updated test data** for 200+ problems to prevent unintended solutions from passing
- Technologies: **Python, C++, LaTeX**

Contests and Awards

IMC Prosperity 3 - Prize Winner — April 2025

- Placed **16th out of 12 000+ teams** (top 0.13%) in **IMC Prosperity 3** trading competition

Canadian Computing Olympiad - Bronze Medalist — May 2021

- Placed in the **top 40 out of 2920 contestants** in the Canadian Computing Competition to qualify

LeetCode - maxcruickshanks

- **Top 200 out of 420 000 users** (top 0.05%), peak rating of 2800+

Codeforces - maxcruickshanks

- **Peak rating of 2000+**, top 30 in Canada

Personal Projects

Compiler for Joos 1W (OCaml)

- Built **OCaml compiler** from **Joos 1W** (subset of Java) targeting **x86 assembly**, with **custom IRs**, **register allocation**, **type-checking**, **casting**, **object-oriented features** in **9 000+ lines**
- Implemented **SSA**, **constant propagation**, **local value numbering**, **dead code elimination**, and **control-flow graph** optimizations; validated with **1,190+ tests** and full coverage
- Designed **dynamic dispatch** via **class/interface dispatch vectors** and **subtype tables**

ASCII Game Engine (C++)

- Wrote **ASCII game engine with C++** in **ncurses** library, built DOOM-style 3D game, Atari Breakout
- Followed **SOLID design principles** and **MVC** for collision mechanics and UI, writing **2 000+ lines**

Course Scheduler (C++) — maxcruickshanks/Course-Scheduler

- **Course scheduler using C++** for minimizing workload in any study term with heuristics