

# Maxwell Cruickshanks

Waterloo, ON, Canada

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## Skills

Java, C++, Go, Python, SQL, JavaScript, AWS EC2/S3,  $\text{\LaTeX}$ , Git, Unix, Scrum, Object-Oriented Design

## Education

University of Waterloo

Sep 2022 – Present

Bachelor of Computer Science, Honours – AI Specialization

Waterloo, ON

- Cumulative GPA: 95.24% / 4.0 GPA

## Work Experience

Lisplogics

May 2024 – Aug 2024

Data Scientist Intern - Algorithms and Machine Learning

Montreal, QC

- Developed car wash routing model using simulated annealing with greedy solver
- Decreased latency by >100x for Go bike-rebalancing simulation
- Feature-engineered linear regression model for predicting bike-rebalancing dynamically
- Modelled diffusion bike stations for routing model in Go
- Technologies used: Go, Python, Grafana, Prometheus, AWS, OR-Tools, TypeScript

Untether AI

May 2023 – Aug 2023

Compute Kernel Software Engineering Intern

Toronto, ON

- Shrunk database stored locally by 97.5% and improved data organization and file structure
- Developed Proof-of-Concept for saturating ports on custom spatial architecture with RISC-V
- Deployed PostgreSQL database and integrated with REST API in TeamCity CI/CD for stats
- Increased throughput >400% for compute kernels for ML layers (like upsample, convolution)
- Technologies used: Python, C++, SQL, Git, Unix, Scrum

Centre for Education in Mathematics and Computer Science

Dec 2022 – Present

Canadian Computing Competition Committee Member

- Developed problems for Canadian IOI selection contests (CCC/CCO) and proofread them
- Generated test data and solutions for problems using C++ Codeforces-style generators
- Technologies used: Python, C++, Java,  $\text{\LaTeX}$

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 to prevent unintended solutions from passing
- Technologies used: Python, C++,  $\text{\LaTeX}$

## Contests and Awards

LeetCode - maxcruickshanks

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

Canadian Computing Olympiad 2021 - Bronze Medalist

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

Codeforces - maxcruickshanks

- Peak rating of 2000+, top 30 in Canada

## Personal Projects

ASCII Game Engine (C++)

- Developed ASCII art game engine in C++ using ncurses library and built games Space Invaders, Atari Breakout, DOOM-style 3D game
- Followed objected-oriented design principles and MVC to build collision mechanics and UI

Course Scheduler (C++)

 maxcruickshanks/Course-Scheduler

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

Compiler for LACS (Scala)

- Developed Scala compiler from LACS to MIPS Assembly Language with garbage collection
- Supports nested procedures, scopes, type-checking, heap and stack, tail-call optimization

Discord Bot (Java and aitestgen)

 maxcruickshanks/Discord-Bot-aitextgen

- Discord bot using Java that can generate text from trained messages with Python and aitestgen