

# ANTHONY COLAIACOVO

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## SKILLS

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**Languages:** C++, C, Python, Java, JavaScript, Objective-C, SQL, Bash

**Technologies:** CUDA, LLVM, OpenCL, Metal, OpenMP, POSIX, WebGL, jQuery

**Tools:** Git, Linux, Valgrind, Docker, CMake, Makefile, Gradle, Maven, JUnit

## EDUCATION

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### University of Guelph

Hon. Bachelor of Computing in Computer Science, Minor in Biology

April 2024

GPA: 3.7/4.0

**CIS\*4900** | *C++, Python, OpenMP, LLVM, CUDA, CMake*

January 2024 - Present

Currently working alongside Dr. Denis Nikitenko to modify the code generation and compilation processes in [NVIDIA's Warp framework](#). Our work consists primarily of recognizing situations where OpenMP directives can be added to generated code, in hopes of speeding up kernels written for CPU execution.

## EXPERIENCE

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### Software Developer

May 2023 - August 2023

*University of Guelph*

Guelph, ON

- Refactored a GPGPU biology simulation project written in C++ and OpenCL by streamlining the build process, reducing total lines of code, and increasing execution speed by up to **28%**
- Ported the refactored project to other GPU compute frameworks such as CUDA and Metal, where the CUDA port was **~1.5x** faster than the OpenCL and Metal versions
- Wrote 7 testing scripts in Python to verify simulation results, such as validating the distribution of sites within a genome affected by mutation
- Automated the testing process with Python scripts, allowing for 37 different testing simulations to be run with with one command, significantly reducing time spent on QA

### Head Teaching Assistant (CIS\*2500, Intermediate Programming)

January 2023 - April 2023

*University of Guelph*

Guelph, ON

- Developed automatic grading software in Python and C which allowed the TA team to grade the assignments of over **300** students in **70%** less time than was expected
- Presented a lecture to students about how to use Git and Make alongside another TA
- Taught intermediate programming concepts (dynamic memory management, pointers, data structures, sorting algorithms) to students in C
- Led 3 lab sections containing approximately 35 students each alongside another TA

### Teaching Assistant (CIS\*1300, Programming)

September 2022 - December 2022

*University of Guelph*

Guelph, ON

- Created Bash scripts to automate user input when grading assignments, leading to a significant increase in marking speed among all TAs
- Taught beginner programming concepts (arrays, loops, functions, files, pointers) to students in C
- Taught students how to use the Linux command line for software development and file management
- Led 3 lab sections containing approximately 40 students each alongside another TA

### Teaching Assistant (CIS\*1050, Web Design and Development)

May 2022 - August 2022

*University of Guelph*

Guelph, ON

- Graded and provided feedback for assignments written in HTML and CSS
- Encouraged by the professor to TA the class again in the future

## PROJECTS

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**SDF-Molecule-Viewer** | *C, Python, JavaScript, jQuery, SQLite, SWIG*

[Repository](#) 

- Developed a full-stack web application made with a C backend, Python server, and SQLite database for displaying and storing molecule data
- Allows the user to upload SDF files, and an SVG rendering of the molecule will be generated and saved at their request