# Clive Fellows
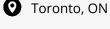
Third Year Mechanical Engineering Student at the University of Toronto

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## EDUCATION

**UNIVERSITY OF TORONTO**
*Bachelor of Applied Science and Engineering (B.A.Sc.) in Mechanical Engineering, Business Minor (Expected graduation Apr 2026)*

## GENERAL SKILLS

**Programming Languages:** C#, Python, Rust, JavaScript, HTML & CSS, MATLAB

**Frameworks:** Electron, Tauri, NodeJS, React, Unity

**Mechatronics:** Arduino micro controllers, developing and sauntering proto boards.

**Design Software:** SOLIDWORKS, Ansys, Fusion 360, Blender

**Software:** Git & GitHub, Microsoft Office & VBA (Word, Excel, PowerPoint)

**Other Skills:** Design and Drawing of Mechanical Systems, Collaboration, Problem-Solving, Innovation

## CERTIFICATIONS

George Brown Machining & Welding courses

French DELF B2 (Fluent)

# HIGHLIGHTS

- 3rd year mechanical engineering student with extensive professional and hobby experience in software engineering.
- Experienced in common languages and frameworks such as C#, Python, Rust, JavaScript, HTML & CSS, electron, NodeJS, React, Tauri, and Unity

# EXPERIENCE

### CN RAIL
*Innovation Management Intern*       *May 2023 – Aug 2023*

- Worked with an external engineering team to implement app features for our wearable safety program.
  - ❖ Designed a new threat analysis algorithm that was more simple, accurate, and efficient than the previous one and fully endorsed by the safety team.
  - ❖ Devised and delegated changes to the location logging system to make it use less power while also being more precise.
- Created an electron-based desktop app that parses log files from CN's wearable safety program to give the user an overview of where and when certain incidents are occurring.
  - ❖ Uses the google maps API to create and display a heat map of where user-specified incidents are occurring.
  - ❖ Users can sort by incident types and generate graphs to look for trends.
- Developed and followed hardware and software prototype testing plans and met with testing participants in the field.

### UNIVERSITY OF TORONTO FORMULA SAE RACING (UTFR)
*Senior Member*       *Sep 2022 – Present*

- Member of a student engineering team developing a formula-style electric racing car for SAE international competitions.
- Currently developing a new file management solution for the team due to the recent shutdown of GrabCad Workbench.
- I also design, manufacture, and install custom parts for the car's braking system.

# PROJECTS

### COLLAB CAD
Developing version control and remote sync software to share large binary files such as CAD files between devices by pushing and pulling to a remote central repository.

- Desktop app developed using the Tauri framework to support a local rust backend with a React front end.
- Server API being developed in rust using the Axum web app framework.

### MOUSE CAMERA
I wrote an Arduino program and windows forms application to interface with the camera chip on a mouse and pull images off the debug serial port.

- The Arduino sets up I2C communication with the mouse and then forwards commands from the windows app (received over USB) to allow the app to read and write to arbitrary memory buffers.

### VOXEL ENGINE
I use sparse voxel octrees to generate and render voxel planets made of $n$ voxels with $log(n)$ memory usage and render time. Voxels are generated using open simplex noise in a compute shader and the isosurface is then extracted using the marching cubes algorithm.

**See more of my projects on my website at [crfellows2.github.io/#projects](crfellows2.github.io/#projects)**

*References Available Upon Request*