

# Finn Cullen

US and Canadian Dual Citizen

Email : fcullen@uwaterloo.ca

Mobile : +1-778-967-2552

## EDUCATION

---

- **University of Waterloo** Waterloo, ON, Canada  
*Bachelors of Software Engineering* Sept. 2024 – Present
- **Glenlyon Norfolk High School (International Baccalaureate Program)** Victoria, BC, Canada  
*100% average in STEM subjects - Final Grade: 38 IB* Sept. 2020 – July. 2024

## SKILLS

---

- **Languages:** Python, C#, JavaScript, TypeScript, CSS, C++, C, Lua, Bash, Assembly
- **Technologies/Frameworks:** React, Flask, AWS, Git, Docker, Unity, RobotOS, Expo, HTML, Latex, SolidWorks
- **Other Skills:** Circuit Design, 3D Modeling, Engineering Schematic Creation, Soldering, Bread-Boarding

## PROJECTS

---

- **Debug Debacle:** Multiplayer online competitive coding website, where users compete to correct bugs in code fastest. Built for MCHacks 2025, winning 3<sup>rd</sup> place. Uses React for front-end, Flask for back-end. My work focused on automatically generating unique problem sets and test cases for each game instance, as well as validating them, through generative AI workflows created using Gumloops API and Web-hooks. [Link](#)
- **FATChess:** Chess engine and AI created without external chess libraries. Written in C# with Unity for UI. AI uses Min-Max search with alpha-beta pruning. Learned about game-dev, AI development, and front end design
- **PathMaxer:** Tour guide robot which takes a schedule uploaded from a Bluetooth integrated smartphone app and autonomously leads users between their classes on campus. Coded using Robot OS, Raspberry Pi, C/C++, React Native, Expo. Uses Dijkstra's algorithm for path finding and image processing for object avoidance
- **Personal Website:** Portfolio website built in React with Tailwind CSS and GitHub Pages. Features interactive background animation and lazy image loading for smoother user experience. [Link](#)
- **3D Graphics Engine:** Python based 3D graphics environment. Features OBJ file support and real-time quaternion-based camera movement. Graphics algorithms uses projection matrices with hidden face occlusion and dithered shading
- **Omni-Directional Rover:** Robot controllable wirelessly through a web server. Using ESP32 and 3D printed self assembled Mecanum wheels. Interacts dynamically with onboard LED display. Developed at Microbots Hackathon 2024

## RELEVANT EXPERIENCE

---

- **University of Waterloo Orbital** Waterloo, ON, Canada  
*Firmware Team Member* Sept 2024 - Present
  - Implemented Doppler effect correction algorithms for ground station to satellite communications
  - Back-end work using Python and FastAPI, and firmware programming, learning RTOS and HIL concepts
- **MiNa Labs - Engineering and Computer Science - University of Victoria** Victoria, BC, Canada  
*Research Assistant* July 2023 - Sept 2023
  - Microfluidics and nanotechnology engineering lab led by Dr. Mina Hoorfar, Dean of Engineering
  - Designed and deployed hardware and software systems to improve lab efficiency and safety
  - Gained experience in SolidWorks and Fritzing for CAD and producing physical components and circuits
- **Horner Foundation** Victoria, BC, Canada  
*Junior Grant Maker* 2020 - July 2024
  - Leader of the Youth Grant Making Committee at the Horner Foundation, not-for-profit.
  - Made grant allocation decisions, reviewed grant applications to ensure proper allocation of funding, organized and led committee meetings, and formally presented results to the board

## OTHER ACHIEVEMENTS

---

- **Hackathons:** 2<sup>nd</sup> place at UTRA Hacks 2025 (150+ teams), 3<sup>rd</sup> place at MCHacks 2025 (200+ teams)
- **CanHack:** Team leader for CanHack CTF coding competition team. Led team in solves and mentored new students
- **Waterloo Math Competitions:** Certificates of distinction earned for all competitions since 2018