# ANDREW MAO

(778) 522 -5315 | andrewmaobc@gmail.com | linkedin.com/in/andrewymao | github.com/Andrewyx

## EDUCATION

**Bachelor of Science, Computer Science** Expected Grad: May 2027
University of British Columbia, Vancouver, BC (Current GPA: 4.33)

## TECHINCAL PROJECTS

**Flint** - *TypeScript, Firebase*

- Developed Obsidian Notes plugin using Firebase API to provide self-hosted cloud backup and cross-platform notes access services.
- Leveraged HTTP protocols to design uploading/downloading processes that save local notes data in Firebase Storage buckets and copied remote data to local instances.
- Integrated personal UI, and hotkey support into Obsidian with Typescript APIs to streamline user experience.

**Soccer Bots** - *HTML, CSS, JavaScript, WebSockets, C++*

- Designed a full-stack web app for remote-controlled ESP32 microcontroller robots to joust and play soccer.
- Optimized preexisting latency issues of the standard Arduino IOT framework using WebSocket protocols for concurrent bidirectional communication resulting in improved robot dynamics.
- Claimed 2nd place in a course tournament and adopted by the department as a model for future coursework.

**Collidy Road** - *Unity Game Engine, C#*

- Launched a Crossy Road themed beat 'em up for the 2023 Game Maker's Toolkit game development competition.
- Built core gameplay mechanics such as world controllers/physics, item interactions and enemy behaviours.
- Ranked top 30% amongst 23 000 participants in the largest game jam in Itch.io history (2023)

## EXPERIENCE

**Software Technical Member**
UBC Thunderbots, Vancouver, BC Sept 2023 – Present

- Collaborated with two technical sub-teams to design autonomous soccer robot simulation tools, gameplay AI, and strategy execution for worldwide RoboCup competitions (~3000 participants).
- Upgraded error code processing software using C++ and Google Protobufs on robot main boards to allow for real-time updates in diagnostics GUI.
- Improved replay capture performance and stability by 10% by reducing OS overheads in file writing processes.

**Neurology Lab Assistant**
Djavad Mowafaghian Centre for Brain Health, Vancouver, BC Jun 2022 – Jun 2023

- Assisted in experiments and research relating to neurodegenerative diseases such as ALS and protein misfolding.
- Facilitated weekly essential lab duties involving solution preparation and equipment sterilization with colleagues.

**Engineering Club President**
Hugh McRoberts Secondary, Richmond, BC Jun 2020 – Jun 2023

- Directed club operations and leadership across three years resulting in club growth from 40 to 100 members.
- Manufactured custom PCB kits to teach C++, robotics, and embedded systems to high school students.
- Co-founded district-wide STEM initiative consisting of over 120 members in collaboration with the University of Victoria, Kwantlen Polytechnic University, and Simon Fraser University to promote education accessibility.

## TECHNICAL SKILLS

- **Languages/Frameworks**: HTML, CSS, Python, C++, C#. JavaScript, Typescript, React, Java, Racket
- **Developer Tools**: Visual Studio Code, Linux, Platform.io, Arduino, Git, Unity, Firebase
- **Design Programs**: Inventor, Fusion 360, TinkerCAD, Ultimaker Cura, Fritzing