

# Max Sun

✉ [m43sun@uwaterloo.ca](mailto:m43sun@uwaterloo.ca) | [Personal Website](#) | [in https://www.linkedin.com/in/max-sun1](https://www.linkedin.com/in/max-sun1) | [github.com/maxsunc](https://github.com/maxsunc)

## Skills

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**Software:** C#, Java, C/C++, HTML/CSS, JavaScript, Python

**Skills/Tools:** Git, Arduino, Node.js, STM32, UART, VS Code, Unity, Blender, Java Swing, Unity Version Control, Figma OpenGL

## Education

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University of Waterloo

**Bachelor of Applied Science (BASc) in Computer Engineering | Sept 2024 - June 2029**

- Sir Isaac Newton Exam Certificate of Distinction (Top 2% Overall) GPA: 3.9/4.0
- Waterloo County Entrance Scholarship (\$5000)
- **Courses:** Fundamentals of Programming (C++), Discrete Math & Logic 1, Digital Circuits & Systems, Electricity & Magnetism, Linear Circuits, Calculus I & II (Eng), Linear Algebra (Eng)

## Experience

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**GooseHacks** 

**Organizer & Tech Lead | Summer 2023 | Kitchener, ON**

- Spearheaded the development of the official event website using HTML, CSS, and JavaScript, implementing real-time updates, interactive schedules, and a user-friendly interface for **200+ participants**
- Managed social media accounts, recruited volunteers, and delivered presentations to ensure a seamless hackathon experience
- Secured sponsorships/partnerships by negotiating with companies including Unity, Postman and 1Password, achieving **\$2k+ in prizes**


## Projects

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**3D Bloons Tower Defense 6** 

**Java, Gradle, Blender, OpenGL**

- Recreated core mechanics of Bloons Tower Defense 6 by building a custom **3D lightweight game engine** in **Java** using **OpenGL**, allowing for enhanced customizability and external 3D modeling imports rendered in-game
- Developed a scalable class hierarchy using object-oriented programming principles, including inheritance and polymorphism, to efficiently manage balloon and monkey behaviors, enabling flexibility and future expansions

**Pomodoro Timer & Task Tracker** 


**UART, C, STM32**

- A precise productivity timer and task tracker, controlled via buttons and displayed on a LCD, designed to keep students focused
- Utilized UART protocol for communication between two STM32 microcontrollers, one as a display and another as a controller

**BoxHead** 

**Javascript, HTML/CSS**

- Designed a handcrafted **augmented reality (AR)** cardboard headset that integrates with a phone camera to display real-time locations of objects or people on a phone visible through the AR headset for an immersive AR experience
- Employed ml5.js library for real-time **object detection** using machine learning model and p5.js to display graphics on the headset
- Utilized **JavaScript** speech recognition and speech synthesis allowing users to specify objects to find and receive auditory feedback

**VR Omni Directional Movement (ODM) Gear** 


**Arduino, Google Cardboard VR, Unity, C#, C++**

- VR physics game replicating grapple and flying mechanics with **Google's Cardboard VR Headset** made for **Hack the North**
- Made a glove controller using an **Arduino Nano**, allowing for a make-shift, low-budget VR controller to the Cardboard Headset
- Implemented **Unity Version Control** for reliable and fast collaboration between four students through branching and merging

**Attack On Titan ODM Gear Simulator** 


**Unity, C#**

- Developed a physics simulator replicating ODM gear mechanics from Attack on Titan, uploaded to Itch.io using WebGL's **JavaScript API** to render 3D graphics seamlessly on a browser amassing **3,000+ players**
- Applied object-oriented programming to bring lifelike swinging, rope mechanics, and immersive effects in a 3D environment

**Float Topia** 

**Unity, C#, Blender**

- A peaceful ocean simulation with realistic buoyancy and wave physics, enabling customizable boats and unique ocean interactions
- Blended physics and artistry to create an educational experience, winning **"Best Hack for Education"** (1st of 54) at **HackJPS**

**Garbage Hero** 

**Unity, C#, Blender**

- Developed a Unity-based game with custom planet and grapple physics, winning **3rd overall** and **"Best Theme"** at **SpringHacks**
- Designed captivating gameplay to promote environmental awareness blending education into a remarkable sci-fi environment