Brian He

brian.usage@gmail.com +1-778-316-4858 Pittsburgh, USA github.com/Modeuser

PROFILE

A creative programmer with a history of engineering hacky solutions along with some clever utilization of technology. Well practiced in high-level scripting languages for robotics, data analysis, and game engines.

SKILLS

Programming languages
C, C#, C++, Python

Software & Tools
Unity, Unreal, ROS, MATLAB, Git, Perforce, R, SPSS

EDUCATION

Masters of Entertainment Technology, *Carnegie Mellon University* 08/2024 – 05/2026
cGPA: 3.7

Neuroscience, *University of Toronto* 09/2017 – 05/2022
Honours Bachelor of Science

PROFESSIONAL EXPERIENCE

Unity Robotics Programmer (Paid Full-Time Summer Intern), 05/2025 – present
Carnegie Mellon University: The Robotics Institute & ETC

- **Head hunted by the director** for the development & setup of a newly purchased **Unitree G1 humanoid robot**
- Lead weekly **1-on-1 meetings** with the **director of the ETC** discussing progress and future directions based on current issues
- Adapted a software solution for **interfacing** with the **G1 robot** via **Unity** (based on a deprecated open source package)
- Wrote custom in-house **Unity API** scripts and packages for interfacing with the **Unitree G1 robot** in **C#**
- Rapidly prototyped various "**proof-of-concept**" movements and animations on the **G1 robot** via **ROS** and **Python**
- Created an **auxiliary football launching** attachment for the **G1 robot,** by hijacking the internals of a toy bought off Amazon
- **Translated technical terminologies** between parties with varying technical proficiencies
- Created **documentations** for the **development process** of both the hardware and software

Software Engineer, *Carnegie Mellon University* 11/2024 – 05/2025

- Successfully proposed a project to CMU faculty to fund the development of a **virtual pet application** on the **Apple Vision Pro** for the semester of Spring 2025
- Recruited a specialized skeleton crew of 4 programmers and 2 artists
- Programmed a **ESP32 microcontroller in C++** to communicate **telemetry data** from a stuffed animal to the **Apple Vision Pro**
- Designed a hacky bluetooth communication system that **significantly reduced development time and cost by months**
- Designed and refined the features of the virtual pet game using an **AGILE** development cycle with **weekly standups**
- Co-developed the **game logic** of the virtual pet using **Unity Game Engine and C#**

Project Lead / Software Developer, *HIRN Interactive* 05/2022 – 02/2024

- Co-founded a **start-up company** with Dr. Tod Thiele and researcher David Yue
- Designed and developed a feature rich **virtual reality software** for **neuroscience education** using **Unity and C#**
- Co-created a **website** where **3D illustrations** exported from the **VR tool** can be uploaded and shared by students and researchers
- Refined features through **iterative feedback** of professors and students via in-person **tech demos**
- Campaigned **pitches** infront of **investors and stakeholders** throughout the duration of the project

AWARDS

Carnegie Mellon University: School of Computer Science, 11/2024
Computer Science + X Grant Recipient

- Awarded **$4000 dollars** by **CMU SCS** to freely pursue a side project over the span of **a year**
- Proposed a project to utilize **virtual reality** as a platform for **communicating** industry standard **medical imagery** files (DICOM) between multiple parties in **real-time 3D**

University of Toronto Startup Competition, *Finalist & Award Winner* 01/2022

- **Top 6 finalist** of 77 entries
- Awarded **$1000** for the development of a **virtual reality** tool that allows the users to **explore the human brain**

PROJECTS

Building Virtual Worlds | Arcade Game 11/2024 – 12/2024

- A **"hackathon" style** project where 2 artist, 2 programmer, and 1 sound designer create a game in **10 days**
- Developed an **augmented reality** hide and seek game on a **novel arcade interface** designed by CMU ECE students
- **Programmed the logic** behind the game that leveraged the unique perspective enabled through high refresh rate LCD glasses, utilizing the **Unity Game Engine and C#**

MATLAB Gambling Game 05/2021 – 09/2021

- Implemented a **gambling game** that **assessed** a user's **ability to take calculated risks**
- Utilized **MATLAB** to script the entire experimental paradigm, which **dynamically adapted** the experiement **based on user behavior**
- **Optimized data analysis** by writing a script which **automated the post-processing of data**

3D Printed Keyboard & Custom Firmware 05/2021 – 06/2021

- Designed and developed a custom **3D printed keyboard** that fits around a **Keebio Iris Rev4**
- Compiled then flashed a custom firmware, **written in C**, onto the PCB of the keyboard to enable **unique rotary encoder functions**

Thatgamecompany × COREBLAZER GAME JAM 2025 06/2025 – 06/2025

- Quickly learned **Unreal Engine 5** and helped program various gameplay features and camera effects via **Unreal Blueprints**
- Coordinated the last minute sprint on the weekend of the submission with a team of 2 programmers and 2 artists