

# Haoxuan Ma

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Portfolio: [cublegend.github.io](https://cublegend.github.io)

## EDUCATION BACKGROUND

**University of Michigan – Ann Arbor, MI, United States** 08/2018 – Present

B.S. in Computer Science, B.S. in Cognitive Science, and minor in Music | Overall GPA: 3.7

**Courseworks:** Game Design | Software Quality Assurance | Artificial Intelligence and Machine Learning | Linear Algebra | Object-Oriented Design | Web System Design | Cognitive Science | Digital Music Composition

## SKILLS

**Programming Languages:** C++ | C# | Java | Python | SQL | HTML | CSS | JavaScript

**API/Tools:** Unreal | Unity | Rest | Fetch | React | Flask | AR.js | Arduino | Ableton Live | Max

## PROJECTS

**YuanGu Project** 08/2021 – 08/2022 Developer/Team Lead (team of 6)

- Designed and implemented the entire battle system and prototype game loop by using finite state machines, the pub-sub pattern, and the flyweight pattern.
- Designed systems such as the ability system, the status system, the AI system, and the navigation system.
- Utilized frameworks and third-party plugins such as Fmod and A\* pathfinding to enhance gameplay and mechanics.
- Cooperated with the design and art team to finalize art concepts, level design, mechanics, and specific implementations.

**Ragnarok Tower Defense Game Project** 09/2021 – 12/2021 Developer

- Developed this Bloons TD6 Replica game which is published on itch.io and steam with a group of 10+ students.
- Designed and implemented the tower placement system, the upgrade system, and the enemy life system.
- Participated in the design of the general tower structure and the enemy structure, implemented UI elements and tools.

**A Maze In Game Project** 09/2020 – 12/2020 Developer/Designer

- Worked with a group of 4 to create the multiplayer maze/puzzle game with an adventurous theme.
- Implemented basic features including the overall structure of the game, including UIs, the ability system, and enemy AI.
- Created most of the SFX, background music, and theme music loop using Ableton Live 10 and implemented them.

**VR CSE Simulator** 09/2022 – 10/2022 Developer/Designer

- Worked with another developer to develop a VR Computer Science major simulator that includes a typical computer lab scenery and a mini game that simulates the experience of being a CSE student.
- Created affordance interaction structures, and implemented basic interactions such as light switches and fire alarm.
- Designed and implemented the UI system, the game state manager, the phone, and the tutorial level for the mini-game.

## WORK EXPERIENCES

**Bluebird Studios LLC** 06/2022 – present **Developer/Team Lead** (team of 3+)

- Participated in the development of the game *Treat Team*, a casual puzzle game that is currently in open beta.
- Lead the team to conceptualize and develop an interactive base camp with a building/grid system and procedurally generated animals.
- Cooperated with the art team to solidify the animal procedural generation concept.
- Designed and implemented the timer system and the pathfinding system for the base camp.
- Designed some of the puzzle levels with varying difficulties.

**Institute of Advanced Technology, University of Science and Technology of China** 06/2021 – 08/2021

**Research and Development Assistant**

- Conducted research project on Vuforia's object recognition, surface detection, and marker-based augmented reality.
- Implemented projects on web-based AR solutions such as AR.js library, ARCore, three.js, and a-frame.
- Conducted detailed analysis on AR.js and ARCore; Individually developed sample applications with respect to each functionality provided by these two libraries—Image Tracking, Location Based, Marker Based, and Gesture Tracking.
- Improved previous projects' UI interactions, and ported previous applications to the web environment by using AR.js.
- Assisted in developing multiple augmented reality projects using Unity Engine and Vuforia AR.