

# Tsingtao Zhang

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Willing to relocate

[zhangtsingtao.github.io/portfolio-website](https://zhangtsingtao.github.io/portfolio-website)  
[github.com/ZhangTsingtao](https://github.com/ZhangTsingtao),

## Projects

**Ocean Simulator** May 2024 [Graphics Programmer](#) [Linear Algebra](#), [OpenGL](#), [GLSL](#), [C/C++](#), [CMake](#), [Visual Studio](#)

- Created a real-time interactive water renderer using GLSL in OpenGL above 30 fps, based on Whitted ray tracing.
- Added in real-time caustics effects to simulate underwater light behavior, enhancing visual realism.
- Created a clicking-promoted water circle waves on the surface, on top of the default wave patterns.
- Applied tone reproduction methods, adapting the picture brightness within 1000 nit range .

**Purr Decor** Dec 2023 [Programmer](#) [Unity](#), [C#](#), [Github](#), [Agile Development](#)

- Implemented a grid-based building system to support precise placement and alignment of furniture.
- Worked in a group of 4, used Agile development method, Github and Trello to manage the project.
- Created an intuitive asset selection UI, quickly onboarding the player to the game.

**Cutie Tower Defense** July 2023 [Programmer](#), [Technical Artist](#) [Unity](#), [C#](#), [Github](#), [Blender](#), [Photoshop](#)

- Designed and implemented an object pooling system, optimized game performance by 40%.
- Developed tower behaviors and an enemy route-changing system, getting rid of 2 extra helper scripts.
- Created environmental assets, contributing to the visual appeal and thematic consistency of the game.

## Experience

**VR Exercise Game Research** June - Aug 2024 [Graduate Research Assistant](#) [Unity](#), [C#](#), [VR development](#), [TCP/IP](#), [Socket](#)

- Enhanced an existing project by resolving leftover issues and optimizing gameplay, collected data items grew from 2 entries to 5, game time extended from 5 min to 30 min.
- parameterized all in-game variables with the user's physical measurements and expected exercise intensity level, enabled dynamic variable tuning.
- Configured a wireless environment for seamless data transfer and real-time streaming of headset imagery, reducing data collecting time by 80%.
- Designed and developed an AI shooter with physics-based aiming and block-avoiding capabilities.

## Skills

**Softwares/Skill Sets:** Unreal 5, Unity, OpenGL, Linear Algebra, VR development, CMake, Visual Studio, TCP/IP, Blender, Substance 3D, Photoshop, Github, Perforce, Trello, Agile Development, UI/UX.

**Programming Language:** C/C++, C#, GLSL, HLSL, Java, Socket, Python, HTML, CSS

**Speaking Language:** English, Chinese (Simplified and Traditional)

## Education

**Game Design and Development, Master of Science** August 2023 - May 2025 (expected), Rochester, USA. Rochester Institute of Technology. Current GPA: 3.82

**Bachelor of Engineering** Sep 2018 – June 2022, Beijing, China. China Agricultural University, Overall GPA: 3.44  
Career-related courses: C and C++ Programming Language, Python Language Programming, Web Technology, Linux, Database Principles and Experiments, Data Structure

## Extracurricular Activities

**Bass in China Agricultural University Choir** Participated in 4 performances in Beijing and 1 national competition with gold price.