

Zhongyang Wu

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Location: Pittsburgh, Pennsylvania

Computer graphics enthusiast with research interests including physically based rendering and global illumination. Distinguished team leader with diplomatic skills in communication and innovative thinking. Ambitious developer aiming at making great games that not only enrich people's lives, but also offer educational value.

EDUCATION

Carnegie Mellon University Pittsburgh, PA
Entertainment Technology Center 08/2023 – Expected 05/2025
Master of Entertainment Technology Candidate

Zhejiang University of Technology Hangzhou, China
College of Computer Science and Technology, College of Software 08/2019 – 06/2023
Bachelor of Engineering in Software Engineering, Overall GPA: 3.92/5.0 (Ranking: 3/99, Top 3%)

EXPERIENCE

NetEase Games (Thunder Fire) Hangzhou, China
Graphics Engineer (Intern) – Engine Core-Tech Team 12/2022 - 05/2023

- Developed tornado-like volumetric cloud (ray marching); Transplant and optimize current weather system.
- Researched and developed cutting-edge real-time render features in mobile games, such as volumetric light.
- Collaborated with artists, designers, and other engineers to develop high-quality solutions for VFX.

Insigma Group Co., Ltd. Hangzhou, China
AR/VR Graphics Engineer (Intern) 08/2022 - 11/2022

- Developed (individually) an AR/VR prototype application for demo-use of a remote surgery assistance project and a medical education project, with gesture interactions between human and 3D organ models in AR glasses
- Realized different shader effects used for medical applications, like human skin, hair, organs and medical apparatus
- Researched and developed cutting-edge AR/VR technologies described in papers

Zhejiang University of Technology Hangzhou, China
Teaching Assistant for “Object Oriented Programming II” 09/2020 - 01/2021

- Addressed more than 100 students’ questions about the course content and assignments; Supervised study hall

ACADEMIC PROJECTS

PBR Renderer using Vulkan 02/2024 - Present

- Designed and implemented a Vulkan based PBR renderer with scene graph loading, material support and IBL.
- Planned to support PRT, Path tracing and screen-space GI algorithms.

Super Mario: Sports Odyssey, A 3D Role-playing Adventure Game Developed via Unity3D 08/2023 - 09/2023

- Designed and implemented the playing methods of 4 game levels and 1 Easter Egg scene via C# scripts
- Realized visual effects using Cg shader language, such as water, grass, snow, crystal, and flame

Volumetric Rendering of Cloud, Mist, and Light Scattering 10/2022 - 11/2022

- Simulated the Tyndall effect in cloud and mist to calculate the volumetric light using Ray Marching technique
- Simulated the shape of volumes using Worley noise with animation to provide realistic visual results

Ray Tracer Implemented via C++ 01/2022 - 02/2022

- Realized the iterative interaction between light and three types of materials (Diffuse, Glossy and Specular) to achieve path tracing; Optimized and accelerated the ray tracing process by using BVH (Bounding Volume Hierarchies)
- Realized other features like textures, lights, volumes, anti-aliasing and motion blur to produce splendid visual effects

Digital City System with Human-Computer Interaction 10/2021 - 11/2021

- Implemented a digital city via Unity3D, in which users can roam around and view the internal design of real estates
- Realized the procedural alternation of day and night in the city; Arranged the interior lighting system in four seasons

SKILLS

- **Computer Languages:** C++, C#, Python, GLSL, HLSL, Cg, Java, C, HTML, JavaScript, PHP
- **Frameworks & Tools:** OpenGL, OpenXR, CUDA, Unity ASE, Shader Graph, RenderDoc, Git, Docker
- **Software:** Unity, Unreal Engine 4, Blender, 3ds Max, Maya, Houdini, Davinci Resolve