Zhongyang Wu

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Location: Pittsburgh, Pennsylvania

Computer graphics enthusiast with research interests including real-time photorealistic rendering and NPR.
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 - Present
Master of Entertainment Technology Candidate (Expected May 2025)

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

Experience

NetEase Games (Thunder Fire) — Hangzhou, China
Graphics Engineer (Intern) — 12/2022 – 05/2023
- Analyzed, improved, optimized, and maintained existing weather system, which focus on volumetric rendering
- Researched, designed, and developed cutting-edge real-time render systems and features in mobile games
- Collaborated with artists, designers, and other engineers to develop high-quality solutions

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

Volumetric Rendering of Cloud, Mist, and Light Scattering — 10/2022 - 12/2022
- 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

Software Rasterization Renderer Implemented via C++ — 04/2022 - 05/2022
- Implemented a Rendering Pipeline from sketch in C++11, with minimal dependencies for windows platform
- Implemented main features like Blinn-Phong shading, shadow mapping and image-based lighting

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

***Super Mario: Sports Odyssey*, A 3D Role-playing Adventure Game Developed via Unity3D** — 10/2021 - 12/2021
- 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

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, Git, Docker
- **Software:** Unity, Unreal Engine 4, Blender, 3ds Max, Maya, Houdini