

# ZIBO YE

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Real-time Rendering | Game Engine | GPGPU Parallel Programming

## SKILLS

- Fluent in Modern C++ with 4 years of studying experience + 2 years of working experience
- Graphics API and Shader Language: Proficient in HLSL, GLSL, DirectX 11, 12 and Vulkan
- Programming Language: Experienced with Python and C#
- Game Engine: Proficient with Unity, experienced with Unreal Engine
- Experienced with CUDA and GPU Parallel Programming Paradigm
- Tools: Visual Studio, VSCode, CMake, Git, SVN, RenderDoc, Microsoft PIX, Nsight Graphics

## WORK EXPERIENCE

### Game Engine Programmer | [NetEase Inc.](#)

July 2020 – July 2021, Feb – July 2023

Project: Justice, a Chinese MMORPG using custom in-house game engine

C++, HLSL, DirectX 11/12

- Physics Simulation
  - Implemented and optimized a multi-threaded physically based soft body simulation system on CPU
  - Implemented GPU-based real-time fluid simulation system
    - Implemented Position Based Fluid Simulation and Screen Space Fluid Rendering
    - Added novel features such as Color Blending and Screen Space Scene Collision
    - Optimized the performance to run on RTX 2070 using 1ms with 30k particles
- Performance Optimization
  - Implemented an instanced bullet system to reduce CPU/GPU overhead, gained over 10% overall FPS boost
  - Initiated a General-Purpose GPU Compute Framework using modern C++ and HLSL
    - Implemented several fundamental parallel algorithms including parallel reduction and scanning, achieved theoretical max memory throughput on GPU
- VFX Programming
  - Wrote a widely adopted uber-shader for 20+ VFX artists
  - Implemented a model particle system and a recursive sub-effect system
- Toolchain Improvements
  - Optimized engine compilation time down to half
  - Fuzzy Search, Auto Save and File History for internal artist editors

### AR/VR Software Engineer Intern | TDG | [Apple](#)

May – Aug 2022

Project: RealityKit, Apple Vision Pro

C++

- Developed AR technologies for RealityKit framework on Apple Vision Pro
- Designed and implemented an internal tool that helps with the testing workflow using C++

## PROJECT EXPERIENCE

### Lead Programmer | [INTENT](#) | Carnegie Mellon University

Aug – Dec 2023

Empathy-Building Tool for Neurotypical-Autistic Workplace Interaction

Unity, WebGL, C#

- Designed and implemented most game systems and mechanics in Unity, including opening screen, load & save system, dialogue system integration, UI systems, NavMesh system, while collaborating with a 5-person interdisciplinary team, 2 faculty advisors and 6 sponsors from CMU and University of Maryland

### Hardware Programmer | [Inner Matter](#) | Carnegie Mellon University

Jan – Apr 2022

VR biofeedback meditation

Unity, VR, C#

- Developed a Unity connection solution with Hexoskin using Bluetooth, iOS app and a relay server, assisted programming in Unity while collaborating with a 5-person interdisciplinary team and 2 faculty advisors

### Programmer | [Building Virtual World](#) | Carnegie Mellon University

Sept – Dec 2021

- programmed 5 first-person virtual and location-based AR/VR worlds with HoloLens 2 and Quest 2 in Unity in collab. with 20 producers, programmers, artists, and sound designers

## EDUCATION

### Carnegie Mellon University

Pittsburgh, PA

Master of Entertainment Technology

Sept 2021 – May 2024 (Expected)

### Peking University

Beijing, China

Bachelor of Science in Intelligence Science and Technology, GPA 3.59/4.0

Sept 2016 – June 2020