

# Zhian Li

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## EXPERIENCE

### GungHo Online Entertainment America ([Link](#))

May 2023 — Current

Software Engineer (Unreal)

- Work on unannounced console game using a customized version of Unreal Engine 5, program in C++ and Blueprints.
- Collaborate with designers and artists to design and implement tools that streamline content creation.
- Use 3d math skills to implement gameplay logic, also work with on tweaking animation within the UE5 engine.

### Team Manas (Advanced Game Project, [Video](#))

August 2022 – May 2023

Usability Engineer (C++)

- Led usability team in a group of 30+ designers, engineers, and artists for one academic year, collaborated in developing a 3d third-person adventure game: *Manas*. The game focuses on the combat experience on foot and horseback.
- Conducted user testing, recorded feedback, addressed design issues and bugs using Unreal Blueprints and C++.
- Enhanced user experience, adjusted settings to boost performance without sacrificing the UE5 level graphic experience.

### Tencent

May 2021 — August 2021

Backend Developer Intern (C++)

- Modified the legacy backend billing server to support auto-renewable contact (max single transaction up to ~\$10,000,000).
- Practiced modern C++ features in production, experienced working in a multi-department collaboration environment.
- Exercised scripting, memory management, and networking on the multicore environment of the Tencent Cloud server.

## EDUCATION

University of Southern California, Los Angeles, CA

### USC Viterbi School of Engineering

2022 - 2023

*M.S. in Computer Science*

GPA: 4.00

**Coursework:** Computer Animation and Simulation (Numerical Methods), Mobile Games Development, Advanced Game Project

### USC Viterbi School of Engineering

2018 - 2022

*B.S. in Computer Science*

GPA: 3.95

**Coursework:** Data Structures, Object-Oriented Design, Discrete Methods, Software Engineering, Algorithms, Artificial Intelligence, Machine Learning, Computer Graphics, Operating System, C++ Game Programming, Game Programming in Unreal 5

## TECHNICAL SKILLS

- Git / Perforce, Unreal 5, OpenGL, Profiling Tools, Game Usability

## PROJECTS

### Haptic Rendering System with VR (C++, Python, Linux, HaRVI Lab Research)

May 2022 – May 2023

- Worked as a research assistant at the Haptics Robotics and Virtual Interaction (HaRVI) Lab at USC under the direction of Prof. Heather Culbertson. Utilized CAD tools and 3d printers to develop a new generation of a haptic rendering system.
- Recorded data with force and position sensors. Rendered the VR interface with OpenGL in multithreaded environment.
- Research paper as co-author got accepted to *Eurohaptics 2024 Conference* ([Link](#)).

### Motion Capture Data Interpolator using Quaternions (C++, OpenGL) ([Simple Gif](#))

- Used quaternions and Bezier curve to interpolate missing data in motion capture sequence.

### Inverse Kinematics Calculator with Linear Blend Skinning (C++, OpenGL) ([Simple Gif](#))

- Implemented an Inverse Kinematics (IK) handler with the pseudoinverse method. Also implemented forward kinematics and linear blend skinning.

### Offline Ray Tracer (C++, OpenGL) ([Simple Image](#))

- Implemented an offline ray tracer that is able to create ray-traced images based on input files. It can accurately capture shadows and specular highlights on opaque object, and that capture the mirroring effect on shining surfaces.
- Utilized super-sampling technique to create an anti-aliasing effect on the edge. ([See This](#))

## ACTIVITIES

USC Trojan Marching Band, Attended Every Home Football Game

August 2019 – August 2022