

JIawei SONG

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SUMMARY OF QUALIFICATIONS

I am currently a student at the University of Southern California, pursuing a Master's degree in Computer Science, I am self-motivated, passionate about computer graphics and game development, and looking forward to starting my career as a software engineer.

EDUCATION

Master of Computer Science, University of Southern California Aug. 2021-May 2023
GPA : 4.0 / 4.0. Related courses: 3D Graphics and Rendering, Game Engine Development, Analysis of Algorithms

Bachelor of Computer Science and Technology, Soochow University Sept. 2016-June 2020
GPA : 3.7 / 4.0. Related courses: Principles of Operating System, Computer Network, Database

SKILLS

Coding Tools C++, C, Python, Lua, HLSL, GLSL, Ruby, HTML, CSS, JavaScript, TypeScript
DirectX, OpenGL, Maya, Node.js, React, Ruby on Rails, Flask, Flutter, Docker, Kubernetes,
MongoDB, PostgreSQL, Google Cloud, Azure serverless Functions, Git

PROJECTS

Prime Engine. Course project [Demo video](#) Aug. 2022-Dec. 2022

- Modified Prime Engine, a **C++** game engine, added features like frustum culling for camera, collision detection and gravity in physics system, and utilized **OpenGL** API to simulate wind effect
- Improved render pipeline with **D3D11** and used compute shader to create realistic water effect

Snake Battle. Developer [Demo link](#) Jan. 2023-Mar. 2023

- Created a platform where users can play Snake by writing algorithms to control bots and compete with others.
- Utilized **Spring Cloud** to establish matching system and bot code running as microservices.
- Designed front-end pages with **Vue.js** and other services with **Spring Boot**, deployed on **AWS**.

Ray tracing renderer in JavaScript. Developer Mar. 2022-May 2022

- Developed a basic ray tracer in JavaScript and added sphere object and dielectric material
- Adopted photon mapping as a global illumination method, reduced rendering time by 30% and improved image quality of result

C++ toy renderer. Course project Jan. 2022-Mar. 2022

- Wrote a renderer from scratch, which can read input triangle and scene JSON data and output a PPM file.
- Implemented Z-buffer, space transformation, smooth shading, texture mapping and anti-aliasing.

EXPERIENCE

Software Engineer Internship July 2019-Aug. 2019
Suzhou Yulong Information Technologies Co., Ltd. *Jiangsu Province, China*

- Led a team of 4 people, modified and perfected relevant features of attendance system used by 50+ staff so that administrator could edit and regulations by a Markdown editor and see work time of each staff in one table
- Wrote a demo of bulletin board system based on Ruby on Rails. Implemented functions such as register, log in, post, reply, edit profile and thumb up
- Got familiar with application of Ruby on Rails and Vue.js framework, gems, model-view-controller design pattern and RESTful API. Learned how to communicate in a team and concept of agile software development