

# Shuning Zhang

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## EDUCATION

**University of Southern California**, Los Angeles, CA

GPA: 3.89/4.0

### Viterbi School of Engineering

*Candidate for M.S. in Computer Science*

Expected Graduation Date: May 2024

*Candidate for B.S. in Computer Science*

Expected Graduation Date: May 2023

**Coursework:** Data Structures, Object-Oriented Design, Discrete Mathematics, Algorithms, Full-Stack Web Development, Computer Systems Basics, Operating Systems, Video Game Programming, Programming Game Engines, Software Engineering, Artificial Intelligence

**Honors:** Dean's List since Spring 2020

### Dana and David Dornsife College of Letters, Arts and Sciences

*Candidate for B.S. in Computational and Applied Mathematics*

Expected Graduation Date: May 2023

**Coursework:** Calculus, Multivariable Calculus, Linear Algebra, Probability Theory, Mathematical Statistics, Mathematics of Physics and Engineering II, Fundamental Concepts of Analysis

**Honors:** Dean's List since Fall 2019

## TECHNICAL SKILLS

- Programming Languages: C++, JavaScript, PHP, Java
- Web Development: HTML, CSS, Bootstrap, JavaScript, jQuery, React.js, PHP
- Database: MySQL
- Tools and Frameworks: Git

## WORK EXPERIENCE

### Course Producer

08/23/2021 – Present

USC Viterbi School of Engineering

- Worked as an undergraduate teaching assistant for CSCI 104 Data Structures and Object-Oriented Design.
- Held regular office hours to help students better understand course concepts and debug their codes in C++.
- Assisted lab instructors in answering questions during lab sessions and participated in exam grading sessions.

### Online Projects Assistant

08/23/2021 – 12/11/2021

Daily Trojan, CA

- Assisted the Online Projects Editor to develop websites 3-5 times a semester.
- Built websites independently based on Figma designs made by UI designer using HTML, CSS, and vanilla JavaScript.
- Cooperated with Daily Bruin's team from UCLA to create the rivalry issue website using React.js. Responsible for the Collaboration and Collab Podcast sections. (<https://github.com/dailybruin/interactive.2021.db-dt-football>)

### Software Developer Intern

12/01/2020 – 01/31/2021

HireBeat Inc., NY

- Established development environment with python3, pip3, virtualenv, Django, node, and PostgreSQL to host website locally.
- Modified the frontend homepage of the website based on the image of the new design with React.
- Utilized React Bootstrap to build layouts of the webpage with Bootstrap's grid system and add styling to the web application with Bootstrap's utility classes.

## ACADEMIC PROJECTS

### Simplified Game Engine | [skkkzhang.com/files/ITP485.mp4](http://skkkzhang.com/files/ITP485.mp4)

Fall 2021

- Implemented the basic math operations and functions, such as 2D, 3D, 4D vector classes and the 3x3, 4x4 matrix classes.
- Developed a core physics mechanism, such as tests for collision.
- Achieved 3D rendering through setting up buffers and creating shaders in DirectX with HLSL. Improved rendering and accomplished different effects with z-buffer, texture mapping, and post-processing.
- Achieved phong lighting model by calculating ambient light, diffuse light, and specular highlights. Added extra lighting detail with normal maps.
- Built a skeletal hierarchy and accomplished smooth animation effects for skinned objects.
- Implemented profiler to time functions and achieved multithreading to improve efficiency. Created an asset manager to load assets on demand and cache the assets.