




# Zihong Zhou

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## Summary



I am strongly interested in computer graphics, especially in physically based rendering. I attempt to learn and understand the principles behind natural phenomena appearing in the physical world. I could then synthesize realistic images in a virtual world fabricated by math and code.

## Education

2017.9 – 2021.6  **B.Sc. Computer Science, South China Agricultural University, China**

GPA: 4.14/5 (Rank: Top 5%)

## Research Publications

-  Zhou, Z., & Wei, L.-Y. (2020). Spherical light integration over spherical caps via spherical harmonics. In *Siggraph asia 2020 technical communications*. SA '20.  doi:10.1145/3410700.3425427

## Research

### Analytical Area Light Integration via Spherical Harmonics

2020.2-2020.8

- Advised by *Dr. Li-Yi Wei* through his Open Mentor program.
- Done research on investigating state-of-the-art methods for efficient polygonal and spherical area light integration.
- Implemented two SIGGRAPH/ToG 2018 papers: Integrating Clipped Spherical Harmonics Expansions, Analytical Spherical Harmonics Coefficients for Polygonal Area Lights.
- Published my first SIGGRAPH short paper Spherical Light Integration over Spherical Caps via Spherical Harmonics.

## Experience

### 4D ShoeTech, Rendering Engineer

2020.9 - present

- Worked on in-house renderer designed for footwear manufacturing. Implemented Eric Heitz's Linearly Transform Cosine, a technique for realtime shading polygonal area lights.
- Several bug fixes to offline renderer SDK.
- Integrated a brand-new DirectX 12 renderer backend to the existing RHI (Render Hardware Interface), being compatible to the current rendering pipeline and APIs.
- Implemented a new physically based reference ray tracer with high visual fidelity based on DirectX 12 backend and DXR (DirectX Ray Tracing) API.

## Service

### SIGGRAPH Research Career Development Committee

2021.2 - present

A committee member in undergraduate mentorship program, aimed at encouraging undergraduates who are passionate about computer graphics to join and become a part of graphics research community by exploring, researching and preparing for future applications!

## Side Project

### Colvillea: A Physically Based GPU Ray Tracer

2018.7-Now

Colvillea is a physically based global illumination renderer running on GPU. It relies on Nvidia's OptiX to achieve parallelism by leveraging GPU resources, resulting in high performance ray tracing rendering.

### Living Room in Unity

2019.11-2019.12

A course project work for Virtual Reality which explores Lightmapping techniques with the newest High-Definition Rendering Pipeline in Unity. With prebaked global illumination using ray tracing methodology, it brings the Living-Room scene to the word-class game engine.

### Simple Photoviewer

2019.3-2019.5

A simple photoviewer written for OOP course using C++/WinRT deployed at Universal Windows Platform. Standard C++17 and XAML language are used for the project. Several optimization techniques are employed to provide the user with a smooth interaction when previewing large image files.

## Skills

Coding	■ C/C++, C++/WinRT, CUDA, C#, XAML
Framework	■ OptiX, DirectX RayTracing, NSight, Mitsuba
Toolkit.	■ $\LaTeX$ , Git, Mathematica, Maya, Blender
Language	■ Mandarin/Cantonese (Native), English (TOEFL 103)