

Minghao Huang

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Education

University of California, Santa Barbara

Sept 2024 – Present

Master of Science in Computer Science

Advisor: *Prof. Lingqi Yan*

Nanjing University

Sept 2019 – June 2023

Bachelor of Science in Computer Science and Technology

Advisor: *Prof. Jie Guo*

Teaching Experience

Teaching Assistant of Algorithm Design & Analysis

Spring 2022

Nanjing University

Publications

Biophysically-based Simulation of Sun-induced Skin Appearance Changes

Pacific Graphics 2024

X. He*, M. Huang*, R. Fu, J. Guo, J. Yuan, Y. Wang, Y. Guo (* Joint first authors)

In this work, we propose a biophysically-based model to illustrate changes in skin appearance under ultraviolet radiation exposure. We apply a mechanism of erythema and tanning to a multilayer volumetric skin appearance model to simulate observable erythema and tanning induced by sun exposure on the skin. The model demonstrates superior quality to the commonly used method with more convincing skin details and bridges biological insights with visual simulations.

Personal Projects

MikuMikuDance Videos

2024

- Created MMD videos using a self-designed anime/toon shader.
- Integrated the toon shader with lightmaps, outline, physically based rendering, signed distance function on face, screen space rim light, etc. to achieve a better appearance.

GraphicsRender

2022

- An offline path tracing renderer written by C++, using microfacet model as the material model to realize physically based rendering.
- Supported multiple importance sampling and different samplers like blue noise sampling to reduce artifact.
- Used bounding volume hierarchy to accelerate rendering.
- Adopted mesh to support OBJ models and polygonal lights.

Azur Defense

2021

- An *Azur Lane* tower defense fan game written by C++, which was realized 2D overlooking game scenes with 3D.
- Adopted OpenGL as the graphics rendering framework and implemented the rasterization process of the rendering pipeline.
- Developed a simple and convenient game engine including game logic, human-computer interaction, scripting, etc. by referring to Unity.

Selected Awards

Excellent Graduate, Nanjing University

2022

Second-class People's Scholarship, Nanjing University

2021 & 2022

Bronze Medal, China Collegiate Programming Contest Changchun Site

2020

The 2020 ICPC Asia Shanghai Regional Contest Honorable Mention

2020

Third-class People's Scholarship, Nanjing University

2020

Technical Skills

Programming Languages: C/C++, Java, C#, Python, GLSL/HLSL

Software: OpenGL, Mitsuba, PBRT, Blender, Unity