JUNCHEN DENG

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https://slongle.github.io

EDUCATION

Harbin Institute of Technology (HIT) – Heilongjiang, China Sept 2017 - 2022
GPA:3.49/4 Major in Computer Science and Technology

SCHOLARSHIPS AND AWARDS

- ACM International Collegiate Programming Contest Nanjing Regional (**Silver Medal**) Nov 2019
- China Collegiate Programming Contest Qinhuangdao Regional (**Gold Medal**) Sep 2019
- Collegiate Computer Systems & Programming Contest (**Gold Medal**) Oct 2019
- China Northeast Collegiate Programming Contest (**1st Place**) May 2019
- Scholarship for Outstanding Students (**Top 10% students at Honor School**) 2018, 2019, 2020

INTERNSHIP EXPERIENCE

Research Intern, MSRA - Beijing, China Jun 2020 - Present
Mentor: Principal Researcher Yue Dong (http://yuedong.shading.me)

- Working on geometry and material capture in multi-view and neural rendering.

PROJECTS

CPU Offline Renderer Feb 2020 - Nov 2020
Physically based offline renderer for learning (https://slongle.github.io/CPURender)

- Achieve thin-film iridescence effect, using the method from Belcour and Barla 2017.
- Support homogeneous and heterogeneous medium using closed-form and delta tracking respectively.
- Support volumetric caustics using photon mapping with beam radiance estimation (2D kernel).

GPU Offline Renderer Dec 2019 - Jan 2020
CUDA optimized physically based offline renderer (https://slongle.github.io/GPURender)

- Implement Wavefront architecture for unidirectional path tracing with NEE and MIS.
- Realize BVH construction using morton code.
- Enable 4-13x speedup compared with CPU unidirectional path tracing.

Jigsaw Puzzle Solver Oct 2019
A genetic algorithm-based jigsaw puzzle solver (https://slongle.github.io/Jigsaw)

- Develop a system to reconstruct the original image from splitted blocks.
- Use blocks' order as chromosome, find and keep optimal pairs iteratively.
- Use MST model to do crossover operation between two chromosomes.
- Achieve 61/236 in Huawei Honorcup Marathon 2.

ACTIVITIES

- Introduction to Modern Computer Graphics, GAMES101, Lingqi Yan (Teaching Assistant)
- Real-Time High Quality Rendering, GAMES202, Lingqi Yan (Teaching Assistant)
- Advanced C Language and Programming, HIT (Teaching Assistant)
- Introduction to Algorithm Competition, HIT (Teaching Assistant)

COMPUTER SKILLS

- Program Languages and Frameworks : C/C++, CUDA, Python, JavaScript, Pytorch
- Tools : CMake, git, LaTeX