Yilong Wu

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Education

University of Electronic Science and Technology of China Chengdu, Sichuan, China

Bachelor of Engineering in Software Engineering, Elite Program *Aug. 2018 – Present*

- GPA: 3.72/4.00 CET4: 582/710
- Excellent course: **GAMES 201**, Computer Architecture(95/100), Compiler(92/100), Operating System(92/100)

Selected Graphics Related Projects

WiRay | *C++, Intel TBB, Physically based rendering*

- Developed a physically based renderer based on nori
- Light Transport Algorithm: PT, BDPT, Photon Mapping
- Disney BRDF
- Build LBVH in parallel on the CPU

WiRay-GPU | *C++, CUDA, Physically based rendering*

- Developed a interactable Path Tacer on GPU
- Accelerating Data Structure: LBVH, HLBVH, SBVH, TRBVH
- Imgui for debuging

PIC vs FLIP vs APIC | *Taichi, Python, Physically based animation*

- A hybrid Eulerian–Lagrangian fluid solver
- MAC grid finite difference scheme
- MGPCG for pressure projection
- Bilinear interpolation for P2G and G2P operation

PBD vs MLS-MPM in real-time | *Taichi, Python, Physically based animation*

- Final project for GAMES 201 & CCVR entries
- Collision and Stretching constraints in PBD
- Multi-species model for sand-water coupling

Euler Fluid | *Taichi, Python, Physically based animation*

- Jacobi, Gauss-Seidel, CG for pressure projection
- Semi-Lagrangian rk1, Semi-Lagrangian rk2, MacCormack, Advection-Reflection for Advection
- Real-time and Interactable

Experience

National University of Singapore Singapore

Summer Workshop *July. 2019 – Aug 2019*

- Made a pet feeding robot based on Raspberry Pi

Multi-Agent and Robotics System Lab, MARS Chengdu, China

Research Assistant *Oct. 2020 – Present*

- Developing LiDAR & RADAR simulating system on GPU
- Developing simulation system for Autonomous driving and Robots

Publication

Real-time Physics Engine Based on MPM and PBD

- **ICVRV 2020**

Honor and Awards

National First Prize. China Competition on Virtual Reality - CCVR 2020 Jilin, China
A survey about the application of material point method in real-time scenarios *Aug. 2020*

National Second Prize. Chinese undergraduate computer design contest Shandong, China
VR games *Jun. 2020*

UESTC school-level scholarship Sichuan, China
Oct. 2019, Oct 2020

Technical Skills

Languages: C/C++, Python, Taichi, CUDA, C#, RISC-V ASM, X86 ASM
Frameworks: OpenGL, Pytorch, Latex, Unity, Unreal...
Math: Calculus, Linear Algebra, Statistics, Probability theory, Numerical Analysis