Yang Zhou | Graphics Researcher

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Education

Ph.D. in Computer Science — **Santa Barbara, CA**
University of California, Santa Barbara (Advisor: Prof. Lingqi Yan) — *Sept 2019 – Present*
Focus: physically based rendering, scene representations, appearance modeling, light transport simulation

Master of Entertainment Technology — **Pittsburgh, PA**
Carnegie Mellon University — *Sept 2015 – May 2017*

Bachelor of Computer Science — **Nanjing, China**
Southeast University, Thesis at Kungliga Tekniska Högskolan, Sweden — *Sept 2011 – June 2015*

Publications and Manuscripts

Unified Gaussian Primitives for Scene Representation and Rendering
Y. Zhou, *S. Wu, and L. Yan. In submission.*

Real-time Level-of-detail Strand-based Hair Rendering
T. Huang, ***Y. Zhou****, D. Lin, J. Zhu, L. Yan, and K. Wu. In submission.*

Efficient Scene Appearance Aggregation for Level-of-Detail Rendering
Y. Zhou*, T. Huang, R. Ramamoorthi, P. Sen, and L. Yan. ACM Transactions on Graphics (pending minor revision).*

Vectorization for Fast, Analytic, and Differentiable Visibility
Y. Zhou*, L. Wu, R. Ramamoorthi, and L. Yan. ACM Transactions on Graphics 40.3: 1-21. Presented at SIGGRAPH 2021.*

Customizable Render Pipelines Using Render Graphs
C. J. White, R. W. Lamore, P. Engstad, I. Gavrenkov, M. Stoll, ***Y. Zhou****, US Patent US2020/0104970A1.*

Professional Experience

Meta Reality Labs Research — **Sausalito, CA; Redmond, WA**
Research Scientist Intern — *June 2023 – Sept 2023; June 2022 – Sept 2022; June 2020 – Sept 2020*
- Research project on neural volumetric rendering and relighting.
- Research project on realistic skin rendering and filtering.
- Research project on texture and appearance synthesis.

NVIDIA Research — **Redmond, WA**
Research Intern — *June 2021 – Sept 2021*
- Research project on volumetric appearance model and spatial correlation.

Apple Inc. — **Sunnyvale, CA**
Rendering Engineer — *June 2017 – May 2019*
- RealityKit: Developed physically-based shading, lighting, HDR pipeline, anti-aliasing, and other real-time rendering techniques.
- AR Quick Look: Developed key features including environment reflection and soft contact shadow.

Facebook Reality Labs — **Pittsburgh, PA**
Game Engineer Intern — *Jan 2017 – May 2017*
- Contributed to an unannounced cooperative social virtual reality system based on Unreal Engine.

Insomniac Games, Inc. — **Burbank, CA**
Gameplay Programmer Intern — *May 2016 – Aug 2016*
- Developed gameplay systems for Marvel's Spider-Man PS4 game.

Personal Projects

Narumi: An Offline Physically Based Renderer — **2017 – 2018**
- Acceleration structures: binned-SAH BVH, HLBVH, and SBVH.
- Integrators: path tracing, BDPT, and VCM, with with participation media support.
- Various material and lighting features such as microfacet models, subsurface scattering, and image-based lighting.

Crowd Simulation by the Least-effort Approach — **Jan 2015 – May 2015**
- Bachelor degree project. Implemented and evaluated crowd simulation based on the Principle of Least-effort.
- Capable of simulating thousands of pedestrians in real time, creating smooth and collision-free motion.

Technical Skills

Programming Languages: C/C++, GLSL/HLSL/Cg, C#, Python
Software: Vulkan, Metal, OpenGL, CUDA, Unity, Unreal Engine, Mitsuba, pbrt, Embree, PyTorch, Blender