
Tao Huang

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EDUCATION BACKGROUND

Nanjing University, Nanjing, Jiangsu, China
Bachelor of Science in Computer Science and Technology
Cumulative GPA: 4.5/5.0

Sept. 2018—Jun. 2022

University of California, Santa Barbara (*Advisor: Prof. Lingqi Yan*)
Master of Science in Computer Science and Technology

Sept. 2022—Jun. 2024

PUBLICATION

Auto Hair Card Extraction for Smooth Hair with Differentiable Rendering

ACM Transactions on Graphics. Presented at SIGGRAPH Asia 2025

Z. Zheng, **T. Huang**, H. Su, X. Ma, Y. Shen, T. Wang, Y. Yang, X. Gao, Z. Pan, and K. Wu

Real-time Knit Deformation and Rendering

ACM Transactions on Graphics. Presented at SIGGRAPH 2025

T. Huang*, H. Shi*, M. Wang*, Y. Qiu, Y. Yang, and K. Wu

Efficient Scene Appearance Aggregation for Level-of-Detail Rendering

ACM Transactions on Graphics. Presented at SIGGRAPH 2025

Y. Zhou, **T. Huang**, R. Ramamoorthi, and L. Yan

Real-time Level-of-Detail Strand-based Rendering

Computer Graphics Forum Presented at EGSR 2025

T. Huang, Y. Zhou, D. Lin, J. Zhu, L. Yan, and K. Wu

Detail-Preserving Real-Time Hair Strand Linking and Filtering

Computer Graphics Forum Presented at EGSR 2025

T. Huang, J. Yuan, R. Hu, L. Wang, Y. Guo, B. Chen, J. Guo, and J. Zhu

Real-time Deep Radiance Reconstruction from Imperfect Caches

Computer Graphics Forum. Presented at Pacific Graphic 2022

T. Huang, Y. Song, and J. Guo.

PROFESSIONAL EXPERIENCE

Developer at LIGHTSPEED

June 2024— Present

Supervisor : Dr. Kui Wu

- Design a system that provides real-time performance and has been evaluated through various application scenarios, including knit simulation for small patches and full garments, and yarn-level relaxation in the design pipeline.
- Our knot-based representation achieves a trade-off between efficiency and accuracy by ignoring out-of-plane force and **provides 7,680× speedup to full yarn-level simulation**.
- Our rasterization pipeline **achieves near-ground-truth visual fidelity while being 120,000× faster than path tracing** reference with fiber-level geometries.

Research Intern at LIGHTSPEED

June 2023—Sept 2023

Supervisor : Dr. Kui Wu

- Proposed an aggregated shading model for a cluster of fiber
- Proposed an LoD structure that supports mainstream simulation methods, and introduced a selection strategy achieving seamless transition between different LoD level.
- Implemented a **real-time strand-based hair rendering pipeline with LoD in the modern GPU rasterization pipeline based on OpenGL** and conducted tests on various hairstyles with dynamics.

SKILLS

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

Software: LaTeX, Git, OpenCV, OpenGL, Falcor, CUDA, Mitsuba, pbrt, Embree, PyTorch, Blender, RenderDoc