

Yuqi Ren

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EDUCATION

Tsinghua University, China, Beijing

09/2022 - Present

B.S., IIIS (Yao Class), Computer Science

Selected Courses: Advanced Computer Graphics, Physics-Based Simulation

RESEARCH EXPERIENCE

Hao Su Lab, University of California San Diego, *Research Intern*

02/2025 – 08/2025

- Project: Latte Art Optimization, Advisor: Prof. Hao Su

Developing a differentiable two-fluid SPH simulator coupled with a differentiable renderer to optimize the generation of latte art and analyzing gradient error in differentiable SPH. Leveraged NVIDIA Warp to achieve GPU acceleration.

[\[Paper\]](#)

Simulation Group, Tsinghua University, *Undergraduate Researcher*

09/2023 - 09/2024

- Advisor: Prof. Tao Du

Studied various fundamental simulation algorithms and gained research experience. Explored the motion of water striders on the water's surface.

TECHNICAL PROJECTS

Two-Way Fluid Solid Coupling

05/2024 - 07/2024

- Implemented two-way fluid-solid coupling in the variational framework based on the paper by Batty titled "*A fast variational framework for accurate solid-fluid coupling*", developed independently.

[\[2D Version Repository\]](#) [\[3D Version Repository\]](#)

Stable Fluid

10/2023 - 01/2024

- Implemented an Eulerian fluid simulator featuring a matrix-free Conjugate Gradient (CG) solver, developed independently. The simulation part is implemented with C++ and the rendering part is implemented with PBRT-v4 and Python.

[\[Repository\]](#)

Cloth Simulation

05/2024 - 06/2024

- A course project to simulate cloth dynamics using FEM, based on a C++ framework from the TA.

TA EXPERIENCE

- Teaching Assistant in Advanced Computer Graphics course

09/2024 - 01/2025

AWARDS

- Freshman Scholarship of Tsinghua University
- Gold Medal in the 52nd International Physics Olympiad (IPhO), top 5 worldwide

SKILLS

Programming Languages: C/C++, Python, CUDA, shell, LaTeX

Software Tools: NVIDIA Warp, OpenGL, Eigen, PBRT, Blender, Docker