# Haomiao Wu

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## EDUCATION

**Yale University,** New Haven, CT                                                                                09/2021 - Present
*Ph.D.,* Department of Computer Science
*Selected Courses:* Physics Simulation for Movies and Games, Advanced Topics in Computer Graphics

**Tsinghua University,** China
*B.S.,* Mathematics and Physics:                                                                                09/2017 - 07/2021
*Selected Courses:* Fundamentals of Computer Graphics. Major GPA: 3.85/4.0

## RESEARCH  EXPERIENCE

**Lightspeed Studios, Tencent America,** *Game Research & Development Intern*                    *06/2024-08/2024*
• Project: Hair Modeling, Advisor: Dr. Kui Wu
Procedural modeling of hair styles.

**Computer Graphics Group, Yale University,** *Graduate Researcher*                                    09/2021-present
• Project: Tiled Eigenfluids, Advisor: Prof. Theodore Kim
Experimenting with efficient mathematical representations of fluid simulation. Built high-quality fluid animation.
• Project: Analysis for Strand and Shell Simulation, Advisor: Prof. Theodore Kim
Using mathematical methods to analyze the dynamics of deformable solid. Provided faster and stabler simulation.

**The Graphics and Geometric Computing Group, Tsinghua University,** *Undergraduate Researcher*     05/2019-06/2021
• Project: Gradient Domain Monte Carlo Path Tracing Denoising, Advisor: Prof. Kun Xu
Implemented a denoiser of MCMC rendered images and their gradient domain images using an unsupervised CNN.

**The Graphics and Imaging Laboratory, University of Washington,** *Summer Research Intern*     06/2020-10/2020
• Project: Fabrication Oriented Design Optimization, Advisor: Prof. Adriana Schulz
Designed plug-ins for FreeCAD to generate design variations. Implemented interfaces for the optimization pipeline.
Relating Paper: "Co-Optimization of Design and Fabrication Plans for Carpentry", ACM Trans. Graph. (SIGGRAPH) (2022).

## PUBLICATIONS

**Haomiao Wu**⋆, Alvin Shi⋆, A.M. Darke, Theodore Kim (⋆ joint 1st authors) (Conditionally Accepted)
Curly-Cue: Geometric Methods for Highly Coiled Hair, SIGGRAPH Asia, 2024

**Haomiao Wu**⋆, Alvin Shi⋆, Jarred Parr, A.M. Darke, Theodore Kim (⋆ joint 1st authors) (**Best Paper Award**)
Lifted Curls: A Model for Tightly Coiled Hair Simulation, Symposium on Computer Animation (SCA), 2023

**Haomiao Wu**, Theodore Kim
An Eigenanalysis of Angle-Based Deformation Energies, Symposium on Computer Animation (SCA), 2023

## TECHNICAL PROJECTS

**Cloth Simulator**                                                                                                04/2022-05/2022
Implemented an FEM cloth simulator from scratch.
**Path Tracing Renderer**                                                                                        02/2019-06/2019
Implemented a renderer from scratch using C++, supporting acceleration hierarchy, mesh simplification, etc.

## SKILLS

Programming Languages: C/C++, Python, Java, shell, Matlab, Mathematica, Haskell, LaTeX.
Software Tools: Matlab, Mathematica, MeshLab, OpenGL, Eigen, FFTW, PyTorch, Android Studio, Mitsuba, Blender