

Shiyang Jia | Résumé

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Research Interests

Physical simulation, Numerical optimization, Optimal control, Geometry processing

Education

University of California, San Diego

Ph.D. in Computer Science and Engineering

Advisors: Tzu-Mao Li and Albert Chern

San Diego, CA

Sep. 2021 – Present

Shanghai Jiao Tong University

B.S. in Computer Science and Engineering, Major GPA: 93.2/100

Zhiyuan Honor Program (an elite program for top 5% students)

Shanghai, China

Sep. 2016 – Jul. 2020

Publication

Physical Cyclic Animations

Shiyang Jia, Stephanie Wang, Tzu-Mao Li, Albert Chern

Proceedings of the ACM on Computer Graphics and Interactive Techniques (SCA 2023)

Experience

miHoYo Inc.

Graphics Research Intern, Manager: Yanhui Huang

Shanghai, China

Mar. 2021 – Aug. 2021

- Tech transfer in Lumi (3D cartoon Vtuber) team worked on real-time cloth simulation in live streaming pipeline.
- Implemented a FEM-based cloth simulator supporting Projective Dynamics with dry frictional contacts.
- Build a keyframe control system for cloth simulation based on XPBD, adopt adjoint method for fast gradient evaluation, explored different numerical solvers for spacetime constraints optimization.

ShanghaiTech University, Flare lab

Research Assistant, Advisor: Xiaopei Liu

Shanghai, China

Sep. 2020 – Jan 2021

- Implemented a GPU cloth simulator including different membrane and bending energy models, different numerical optimization algorithms for solving implicit Euler time stepping, sparse matrix assembly and linear solve on GPU.

Microsoft Research Asia

Research Intern, Advisor: Tiantian Liu

Beijing, China

Oct. 2019 – Jun. 2020

- Developed a GPU collision handling algorithm for hair simulation that achieves 10x speedup over previous method.
- The key idea is to avoid expensive matrix inversion in linear complimentary problem by splitting mass matrix and elasticity hessian, then updating the vertex position and collision impulse in a Jacobi-style iteration. Implementation uses discrete elastic rod model.

Teaching

CSE 291 Physics Simulation

Teaching Assistant, Instructor: Prof. Albert Chern

UCSD

2023 Spring

- Around 30 graduate students. I helped with grading and holding office hours.

Awards

- Jacobs School of Engineering Fellowship 2021
- SJTU Outstanding Undergraduate Award (5%) 2020
- Spotlight & Most Popular Award in Google Girl's Hackthon 2019
- Zhiyuan Honor Scholarship (5%) 2019
- Academic Excellence Scholarship 2017 – 2019
- Honorable Mention in MCM/ICM 2017

Skills

Programming Languages: C/C++/C#, CUDA, Python, Javascript

Libraries: Intel MKL, cuBLAS, cuSOLVER, Eigen, OpenGL, OpenCV, Tensorflow, Taichi, D3.js, ROS

Tools: MATLAB, Houdini, Unity, Blender, L^AT_EX, Git

Languages: Chinese (native), English (professional)