Zhehao Li

zhehaoli@mail.ustc.edu.cn personal website

Education

University of Science and Technology of China Hefei, China
– **M.S., Graphics & Geometric Computing Laboratory** Sep. 2021 - Present

- Research topic: Differentiable Simulation, Computational Fabrication
- Advisor: Prof. Ligang Liu

University of Science and Technology of China Hefei, China
– **B.Eng. in Dept. of Computer Science** Sep. 2017 - Jun. 2021

- Overall GPA: 91.14/100
- Outstanding Graduate (**Top 5%**)

Research Interest

I am interested in differentiable simulation for solving inverse control and design problems, as well as AI for simulation. My recent research is particularly focused on the following areas:

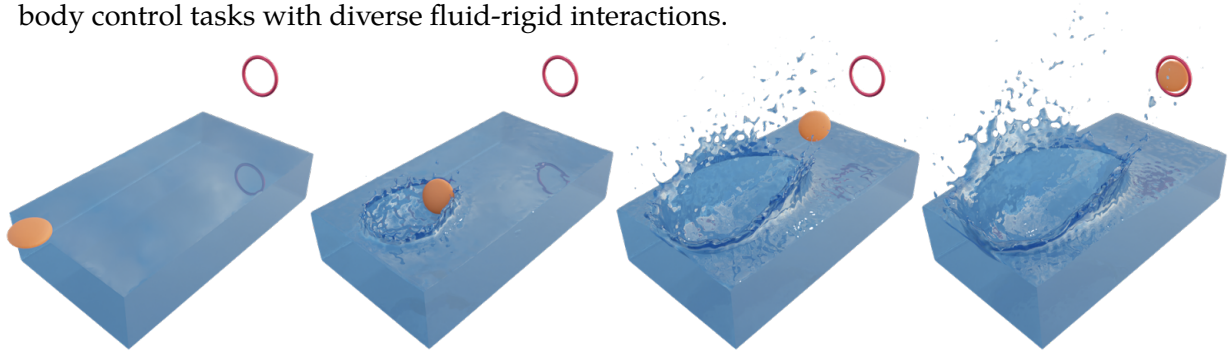
- **Differentiable Simulation**
  - Differentiable fluid-solid coupling
  - Topology optimization and computational fabrication
- **AI + Simulation**
  - Accelerating deformable and contact simulations with neural networks

Publications & Projects

DiffFR: Differentiable SPH-based Fluid-Rigid Coupling for Rigid Body Control (link)
ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2023) Dec. 2023

Zhehao Li, Qingyu Xu, Xiaohan Ye, Bo Ren, Ligang Liu

- A differentiable SPH-based fluid-rigid coupling simulator addressing the instability issues of gradient and demonstrating its efficacy, scalability, and extensibility in various challenging rigid body control tasks with diverse fluid-rigid interactions.



Numerical Coarsening with Neural Shape Functions (link)
Computer Graphics Forum, 2023 Mar. 2023

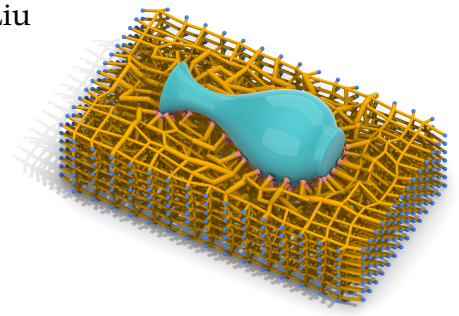
Ning Ni, Qingyu Xu, **Zhehao Li**, Xiao-Ming Fu, Ligang Liu

- A new numerical coarsening method for accelerating deformable simulation by adopting neural networks as nonlinear shape functions to achieve generalization capability as well as good accuracy.

Computational Cushioning Package Design (Submitted to SIGGRAPH 2022) Jan. 2022

Zhang Di, **Zhehao Li**, Xiaoya Zhai, Xiao-Ming Fu, Ligang Liu

- A computational model for efficient cushioning package design to ensure shipping safety of fragile items by geometric and topological optimization.



Teaching & Community Service

SGI 2022: Summer Geometry Initiative Online
– **Voluntary Assistant** July 2022 - Oct. 2022

- Organizer: Prof. Justin Solomon. MIT

GAMES103: Introduction to Physics-based Animation Online
– **Teaching Assistant** Oct. 2021 - Jan. 2022

- Lecturer: Prof. Huamin Wang, Ohio State University

Taichi Graphics Course Online
– **Teaching Assistant** Sep. 2021 - Jan. 2022

- Lecturer: Dr. Tiantian Liu, Taichi Graphics

Research & Industrial Internship

Tsinghua University Shanghai, China
– **Research Intern, Shanghai Qi Zhi Institute** July. 2023 - Present

- Research Topic: AI + deformable simulation
- Advisor: Prof. Tao Du

University of Chicago Chicago, USA
– **Research Intern, Human Computer Integration Lab** July. 2019 - Sep. 2019

- Research Topic: Intellectual Medical Wearable Device
- Advisor: Prof. Pedro Lopes

TikTok, Bytedance Inc. Shenzhen, China
– **Industry Intern, Product RD and Infrastructure Department** June. 2020 - Aug. 2020

- Intern Topic: Collision Detection, Position-based Dynamics

Honors & Awards

- National Scholarship for Graduate Excellence (Top3%) Oct. 2023
- Outstanding Graduate Award, USTC (Top5%) Jun. 2021
- Outstanding Student Scholarship - Golden Award, USTC (Top3% in 181) Oct. 2018

Skills

- Programming: C++, Python, Matlab, Taichi, PyTorch