Zhehao Li

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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

My research interest lies in the intersection of physics-based simulation in computer graphics, robotics and machine learning. My recent research is particularly focused on the following areas:

○ **Differentiable simulation for solving inverse design and control challenges**
　- 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.
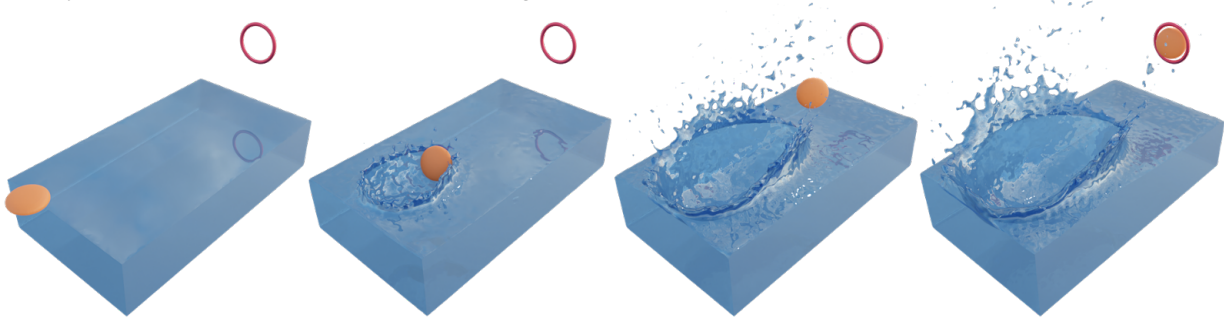
Numerical Coarsening with Neural Shape Functions (link)
Computer Graphics Forum, 2023　　　　　　　　　　　　　　　　　　　Mar. 2023

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

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

o A computational model for efficient cushioning package design to ensure shipping safety of fragile items by geometric and topological optimization.
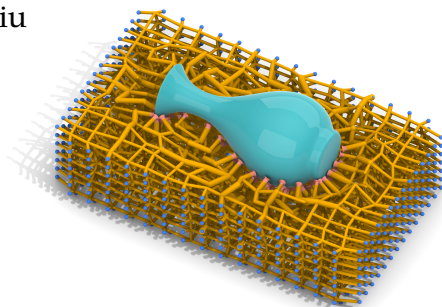
Teaching & Community Service

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

o Organizer: Prof. Justin Solomon. MIT

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

o Lecturer: Prof. Huamin Wang, Ohio State University

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

o Lecturer: Dr. Tiantian Liu, Taichi Graphics

Research & Industrial Internship

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

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

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

o Intern Topic: collision detection, position-based dynamics

University of Science and Technology of China   Hefei, China
   – **Research Intern, Advanced Data System Lab**   Nov. 2019 - May 2020

o Research Topic: generic and extensible performance estimator for data parallel DNN training
o Advisor: Prof. Cheng Li

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

o Research Topic: intellectual medical wearable device
o Advisor: Prof. Pedro Lopes

Honors & Awards

o National Scholarship for Graduate Excellence (Top 3%)   Oct. 2023
o Outstanding Graduate Award, USTC (Top 5%)   Jun. 2021

Skills & Others

o Programming: C++, Python, Matlab, Taichi, PyTorch
o Hobbies: Frisbee, Swimming, Guitar, Piano