

# Liangwang Ruan 阮良旺

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## EDUCATION

School of Computer Science, Peking University

Ph.D. of Computer Science, in process, advised by Prof. [Baoquan Chen](#)

Beijing

Sep 2021 — Now

Yuanpei College & Turing Class, Peking University

Bachelor of Science, in Artificial Intelligence, Summa Cum Laude; GPA: 3.72

Beijing

Sep 2017 — Jun 2021

## RESEARCH INTERESTS

My research interests focus on computer graphics, with a particular emphasis on physics-based animations. I aim to push the boundaries of simulation algorithms to achieve greater realism and efficiency, paving the solid road to physical AI and beyond.

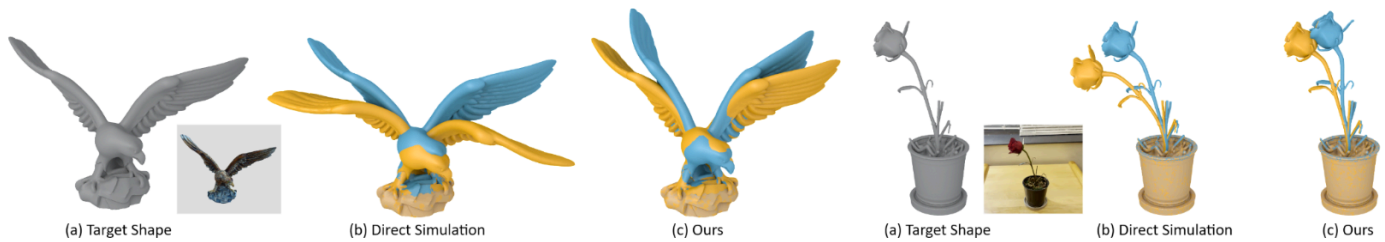
## PUBLICATIONS

**STAGED: Stress-Tensor Assisted Global-local-global solver for interactive Elastic shape Design**

Eurographics 2026

Liangwang Ruan, Bin Wang, Tiantian Liu, Baoquan Chen

*physical shape reconstruction of elastics from real world*

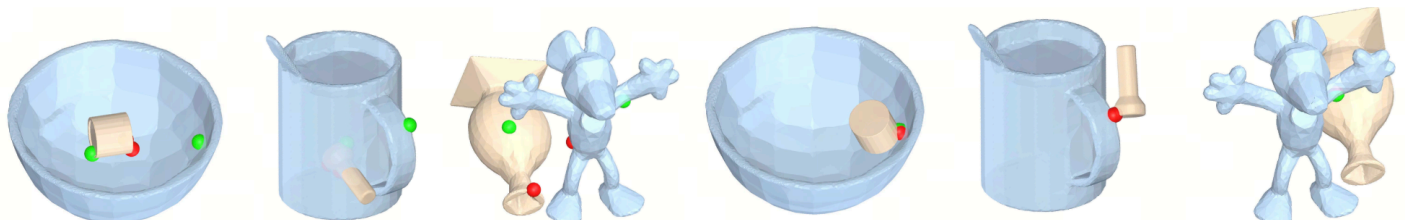


**Robust Differentiable Collision Detection for General Objects**

ICRA 2026

Jiayi Chen, Wei Zhao, Liangwang Ruan, Baoquan Chen, He Wang

*differentiable mesh-to-mesh collision detection*

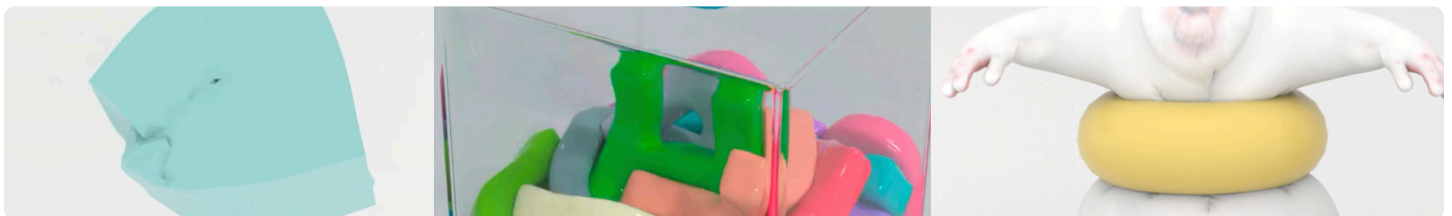


**MiNNIE: a Mixed Multigrid Method for Real-time Simulation of Nonlinear Near-Incompressible Elastics**

ACM Transactions on Graphics (SIGGRAPH Asia, Journal Track), 2024

Liangwang Ruan, Bin Wang, Tiantian Liu, Baoquan Chen

*fats and muscles in real-time, locking-free*

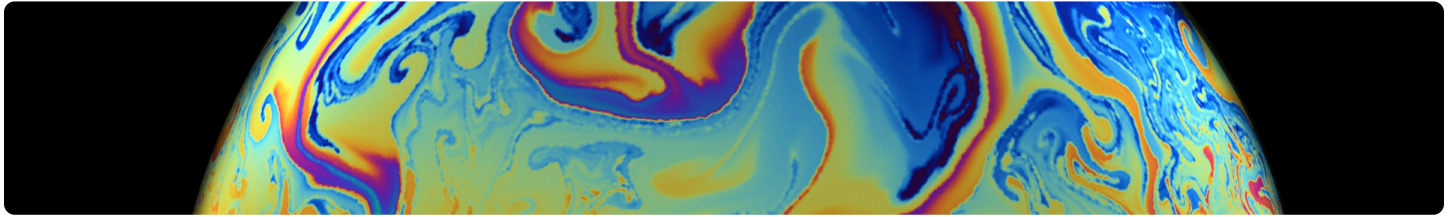


## A Vortex Particle-on-Mesh Method for Soap Film Simulation

ACM Transactions on Graphics (SIGGRAPH North America, Journal Track), 2024

Ningxiao Tao, **Liangwang Ruan**, Yitong Deng, Bo Zhu, Bin Wang, Baoquan Chen

*swirling vortices, flowing colors, on envolving bubbles*



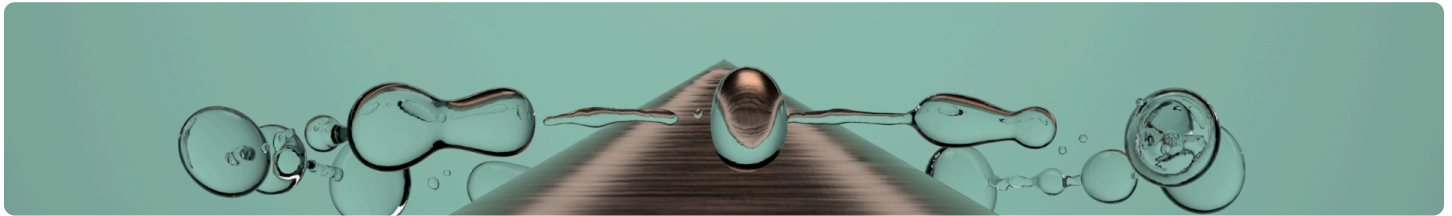
## Position-Based Surface Tension Flow

ACM Transactions on Graphics (SIGGRAPH Asia, Journal Track), 2022

Xingrui Xing\*, **Liangwang Ruan**\*, Bin Wang, Bo Zhu, Baoquan Chen (\* for joint first author)

- covered in [Technical Papers Trailer](#)

*surface-tension in PBD fluid, easy to implement, fast to solve*



## Solid-Fluid Interaction with Surface-Tension-Dominant Contact

ACM Transactions on Graphics (SIGGRAPH North America, Journal Track), 2021

**Liangwang Ruan**\*, Jinyuan Liu\*, Bo Zhu, Shinjiro Sueda, Bin Wang, Baoquan Chen (\* for joint first author)

- covered in [Technical Papers Trailer](#)
- cited in [Nature Physics: The flow from simulation to reality](#)
- covered in [Two Minute Papers: A Simulation That Looks Like Reality!](#)

*strong surface-tension in fluid-solid coupling*



## TEACHING ACTIVITIES

- Co-teach the online course [GAMES001: Mathematics in Computer Graphics](#), over **82k** views (up to Sep 2025) on [bilibili](#)
- Co-author of the first part of the online textbook [Visual Computing](#)
- TA of Visual Computing, Peking University, Fall 2023, Fall 2022, Spring 2022
- TA of Practice on topics of Frontier Computing, Peking University, Fall 2021, Spring 2021

## INTERNSHIPS

### X Square Robot

Research Intern

Beijing

Feb 2026 — Now

### Galbot

Research Intern, Grasp Generation

Beijing

Sep 2025 — Feb 2026

**SEED, Bytedance**

*Research Intern, Video Generation, advised by Jiashi Feng*

Beijing

*Mar 2025 — Aug 2025*

**AICFVE, Beijing Film Academy**

*Research Assistant, advised by Bin Wang*

Beijing

*2019 — 2021*

## **HONORS AND AWARDS**

- Award for Scientific Research, Peking University, Dec 2023
- John Hopcroft Scholarship, Nov 2020
- Merit Student, Peking University, Dec 2018
- Founder Scholarship, Dec 2018
- **Gold Medal** in 33th Chinese Physics Olympiad (CPhO), Nov 2016