

Liangwang Ruan 阮良旺

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EDUCATION

School of Computer Science, Peking University

Beijing

Ph.D. of Computer Science, in process, advised by Prof. Baoquan Chen

Sep 2021 — Now

Yuanpei College & Turing Class, Peking University

Beijing

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

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

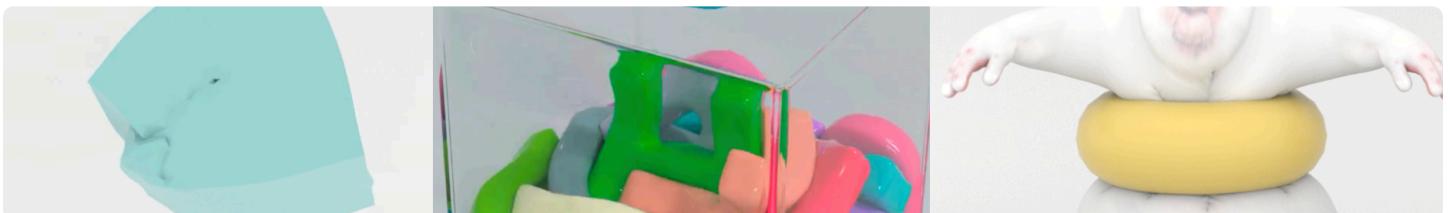


MiNNIE: a Mixed Multigrid Method for Real-time Simulation of Nonlinear Near-Incompressible Elastics

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

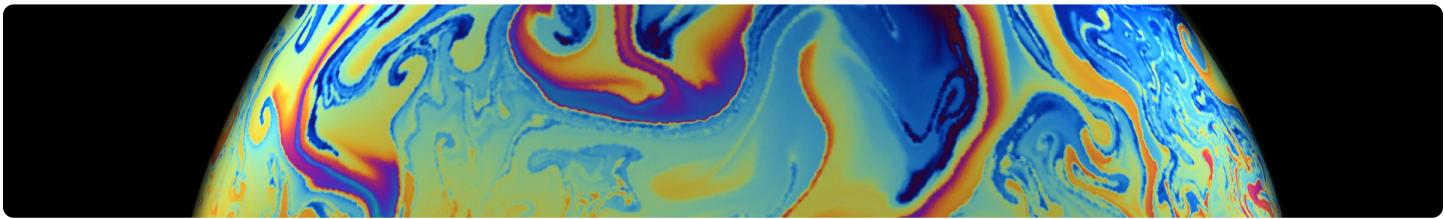


A Vortex Particle-on-Mesh Method for Soap Film Simulation

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 enveloping bubbles



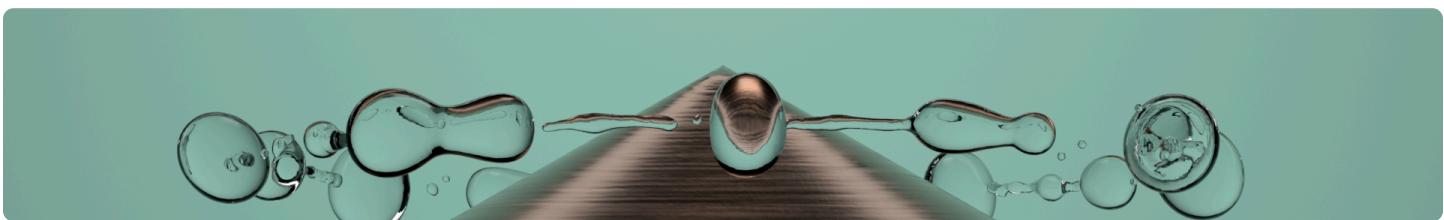
Position-Based Surface Tension Flow

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