

ZIQUI ZENG

Research Manager (Simulation Lead), Human-Centered Robotics Lab
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EMPLOYMENT HISTORY

National University of Singapore , Research Fellow	2025 – present
CAIR-CAS, Hong Kong , Research Fellow	2023 – 2025

ACADEMIC QUALIFICATIONS

Ph.D. in Computer Graphics , University of Strasbourg, France	2019 – 2023
Eng. Degree in Automation , University of Technology of Troyes, France	2017 – 2019
B.Sc. in Computer Science , University of Shanghai, China	2013 – 2017

RESEARCH INTEREST

Physics Engines for Robotics, Contact Mechanics, Differentiable Simulation, GPU Numerical Architecture, Sim-to-Real for Manipulation.

SELECTED RELATED RESEARCH PUBLICATIONS

1. **Ziqui Zeng**, et al. Fast But Accurate: A Real-Time Hyperelastic Simulator with Robust Frictional Contact. *ACM Transactions on Graphics (Proc. ACM SIGGRAPH 2025)*.
2. **Ziqui Zeng**, et al. Fast and Reliable Gradients for Deformables Across Frictional Contact Regimes. arXiv:2603.16478 (2026).
3. Siyuan Luo, ..., **Ziqui Zeng**^{*}, Fan Shi. FLASH: Fast Learning via GPU-Accelerated Simulation for High-Fidelity Deformable Manipulation in Minutes. arXiv:2604.17513 (2026).
4. **Ziqui Zeng**, et al. Real-Time FE Simulation for Large-Scale Problems using Precondition-Based Contact Resolution and Isolated DOFs Constraints. *Computer Graphics Forum 2022*.
5. **Ziqui Zeng**, et al. Dynamic Cutting Simulation using Elastic Snapping for Mesh Quality Optimization. *Computer Graphics Forum 2025*.
6. Zhenhao Huang, ..., **Ziqui Zeng**, Fan Shi. Few-Shot Neural Differentiable Simulator: Real-to-Sim Rigid-Contact Modeling. *IEEE ICRA 2026*.
7. Xin Liu, ..., **Ziqui Zeng**, ..., Fan Shi. Enabling Robust Cloth Manipulation via Inference-Time Simulator-in-the-Loop Refinement. arXiv:2606.24552 (2026).
8. Chunzheng Wang, ..., **Ziqui Zeng**, ..., Fan Shi. Soft Responsive Materials Enhance Humanoid Safety. arXiv:2601.02857 (2026).

^{*} Corresponding author.

GRANTS & RESEARCH FUNDING

- **NVIDIA Academic Grant**, 2025. *Adaptive Fault-Tolerant Safe Locomotion with Differentiable Simulation*.

- **Google Research Funding**, 2025. *Sim-to-Dex: Contact-Rich Graph Neural Models for Robotic Manipulation*.
- **Swiss AI Initiative Small Grant**, 2025. *Learning Deformable Contact Dynamics for 4D Spatial Intelligence*.

INVITED TALKS, POSTERS & SERVICE

- **Talks & Workshops:** ETH Zurich CRL Seminar; IEEE ICRA 2025; CoRL 2025.
- **Posters:** ACM SIGGRAPH Asia 2025; NUS AI Research Day; RAS TC Model-Based Optimization for Robotics (2025).
- **Service:** Organizer, IEEE ICRA 2026 Workshop “Synthetic Data for Robot Learning”.