

Lulin Liu

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EDUCATION

College of Science & Engineering, University of Minnesota, Twin Cities *Minneapolis, USA*
B.S. in Computer Science *Sep. 2023 – Dec. 2025*

Awarded the **Optum Computer Science & Engineering Scholarship** 4 recipients per year.

School of Future Tech., China University of Geosciences, Wuhan *Wuhan, China*
B.Eng. in Computer Science *Sept. 2021 – Jun. 2023*

PUBLICATIONS

- [1] **Lulin Liu***, Dayou Li* Yiqing Liang, Sicong Jiang, Hitesh Vijay, Hezhen Hu, Xuhai Xu, Zirui Liu, Srinivas Shakkottai, Manling Li, Zhiwen Fan, “EgoTL: Egocentric Think-Aloud Chains for Long-Horizon Tasks”, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Findings*, 2026.
- [2] Nuo Chen*, **Lulin Liu***, Zihao Li, Ziyao Zeng, Zihao Zhu, Wenyan Cong, Junyuan Hong, Yunhao Yang, Zhengzhong Tu, Yan Wang, Boris Ivanovic, Marco Pavone, Zhangyang Wang, Yang Zhou, Zhiwen Fan, “A Physics-Grounded Benchmark for Multi-Agent Dynamics in World Models”, ECCV, under review, 2026.
- [3] Dayou Li*, **Lulin Liu***, Bangya Liu, Shijie Zhou, Jiu Feng, Ziqi Lu, Minghui Zheng, Chenyu You, Zhiwen Fan, “Egocentric World Model for Photorealistic Hand Object Interaction Synthesis”, ECCV, under review, 2026.
- [4] Huiwen Han*, **Lulin Liu***, Bangya Liu, Yuanhao Cai, Nuo Chen, Jade Wang, Ziqian Xie, Chenyu You, Shuiwang Ji, Degui Zhi, Zhiwen Fan, “Anatomically Compositional Latent Diffusion for Controllable 3D Brain MRI Generation”, ECCV, under review, 2026.
- [5] Nuo Chen, Kangqi Ni, **Lulin Liu**, Joga Ivatury, Ying Ding, Farshid Alambeigi, Tianlong Chen, Zhiwen Fan, “EndoMD-SLAM: Endoscopic Gaussian Splatting SLAM under Optical Degradation with Memory and Static-Transient Decomposition”, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, under review, 2026.
- [6] Dayou Li, Jiuzhou Lei, Hao Wang, **Lulin Liu**, Yunhao Yang, Zihan Wang, Bangya Liu, Minghui Zheng, Zhiwen Fan, “Learning Actionable Manipulation Recovery via Counterfactual Failure Synthesis”, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, under review, 2026.

PROJECTS AND EXPERIENCE

Interactive 3DGS for Real-time Deformation and Visualization *Sep. 2024 – May 2025*
University of Minnesota, Minneapolis, MN *Advisor: Zhu-Tian Chen*

- Developed an Apple Vision Pro pipeline that captures camera input and hand gestures to reconstruct interactive 3D objects in under 3 minutes, achieving **PSNR over 20 dB**.
- Built a human-in-the-loop manipulation system for **3D Gaussian Splatting (3DGS)** with socket-based real-time training visualization, selective Gaussian removal, and interactive object scaling.
- Designed a predictive **4D Gaussian Splatting (4DGS)** deformation framework that leverages temporal information to forecast future 3D structural changes.

Teaching Assistant for CSCI 4541: Natural Language Processing *Aug. 2025 – Dec. 2025*