Immersive Multimedia & Embodiment Group: 3D Vision & Robotics

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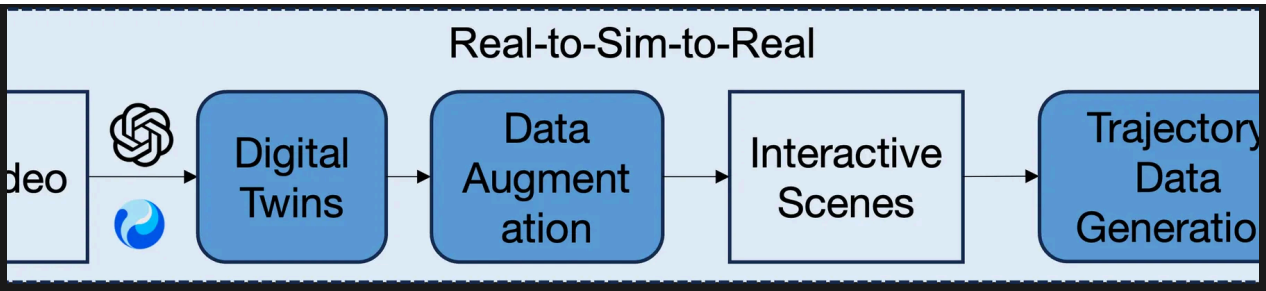
其他 10 个属性

Our Mission



To achieve Real-to-Sim-to-Real, we need accurate digital twins reconstruction, 3D scene augmentation and trajectory data generation.

The Immersive Multimedia & Embodiment (IME) Group is dedicated to realizing the Real-to-Sim-to-Real pipeline and making it **truly** applicable to robot model training. If you are interested in any of following topics, we warmly welcome you to get in touch!

- `3D Reconstruction`
- `Physics-based Simulation`
- `Trajectory Data Synthesis`
- `Interactive Scene Generation, via VLMs or LLMs`
- `Robot Models from Simulated Data`

Contact

Zhi Wang

Email: wangzhi@tsinghua.edu.cn

Personal Page: http://zwang.inflexionlab.org

Shuzhao Xie

Email: xiesz99@gmail.com

Personal Page: http://shuzhaoxie.github.io

🔥🔥🔥Tsinghua/HIT-SZ/SUSTech Undergrad Students

We welcome undergraduate researchers at all class levels. While it is not a requirement, a background in related areas (e.g., AI, EE, math, material, robotics, computer vision) and excellent grades are preferred. If you are interested, please email Shuzhao Xie with your CV and (unofficial) transcript.

Prospective PhD/MS

We cannot reply to every inquiry, but you can email us with the words "Prospective Student" in the subject line, and attach a CV **and** links to any papers that represent your research interests.

Prospective Interns/Visiting Scholars

Email Shuzhao Xie with your CV, transcript, research statement, and links to any papers that represent your research interests.

Recent Publications

Real-to-Sim

Implicit Neural Representation

1. Enhancing Implicit Neural Representations via Symmetric Power Transformation, Weixiang Zhang, Shuzhao Xie, Chengwei Ren, Shijia Ge, Mingzi Wang, Zhi Wang, AAAI 2025 (CCF-A)
2. EVOS: Efficient Implicit Neural Training via EVOlutionary Selector, Weixiang Zhang , Shuzhao Xie, Chengwei Ren, Siyi Xie,Chen Tang, Shijia Ge, Mingzi Wang, Zhi Wang*, CVPR 2025 (CCF-A)
3. Expansive Supervision for Neural Radiance Field, Weixiang Zhang, Wei Yao, Shuzhao Xie, Shijia Ge, Chen Tang, Zhi Wang, ICME 2025 (CCF-B)

Dynamic Scene Reconstruction

1. SD-GS: Structured Deformable 3D Gaussians for Efficient Dynamic Scene Reconstruction, W Yao, S Xie, L Li, W Zhang, Z Lai, S Dai, K Zhang, Z Wang, ArXiv 2025

General Pattern Recognition

1. Cost Effective MLaaS Federation: A Combinatorial Reinforcement Learning Approach, Shuzhao Xie, Yuan Xue, Yifei Zhu, Zhi Wang, INFOCOM 2022 (CCF-A)
2. SkyML: A MLaaS Federation Design for Multicloud-based Multimedia Analytics, Shuzhao Xie, Yuan Xue, Yifei Zhu, Zhi Wang, *IEEE Transactions on Multimedia (TMM), CCF-B, THCPL-A*
3. Lungmix: A Mixup-Based Strategy for Generalization in Respiratory Sound Classification, Shijia Ge, Weixiang Zhang, **Shuzhao Xie**, Baixu Yan, Zhi Wang, ICASSP 2025, *CCF-B*

4. PulmoScan: A Practical Pulmonary Disease Pre-Screening System, Baixu Yan, Shijia Ge, Meizi Lu, Weixiang Zhang, Shuzhao Xie, Zhi Wang, ICASSP 2025, *CCF-B*

Sim-to-Real

Human Motion Generation

1. Music-Aligned Holistic 3D Dance Generation via Hierarchical Motion Modeling, Xiaojie Li, Ronghui Li, Shukai Fang, Shuzhao Xie, Xiaoyang Guo, Jiaqing Zhou, Junkun Peng, Zhi Wang. *International Conference on Computer Vision (ICCV)*, 2025 (CCF-A)

General Visual Editing

1. TextIR: A Simple Framework for Text-based Editable Image Restoration, Y Bai, C Wang, S Xie, C Dong, C Yuan, Z Wang, TVCG 2025 (CCF-A)
2. Tuning-Free Visual Customization via View Iterative Self-Attention Control, Xiaojie Li, Chenghao Gu, Shuzhao Xie, Yunpeng Bai, Weixiang Zhang, Zhi Wang, arXiv 2024
3. DragScene: Interactive 3D Scene Editing with Single-view Drag Instructions, C Gu, Z Li, Z Zhang, Y Bai, S Xie, Z Wang, arXiv 2024

Lightweight Rendering

1. MesonGS: Post-training Compression of 3D Gaussians via Efficient Attribute Transformation, Shuzhao Xie, Weixiang Zhang, Chen Tang, Yunpeng Bai, Rongwei Lu, Shijia Ge, Zhi Wang, ECCV 2024 (CCF-B, THCPL-A)
2. SizeGS: Size-aware Compression of 3D Gaussian Splatting via Mixed Integer Programming, **Shuzhao Xie***, Jiahang Liu*, Weixiang Zhang, Shijia Ge, Sicheng Pan, Chen Tang, Yunpeng Bai, Cong Zhang, Xiaoyi Fan, Zhi Wang, *ACM Multimedia (MM)*, 2025 (CCF-A) *Equal contribution