

Self Introduction

- I am a postdoc associate at **Carnegie Mellon University (CMU)**.
- My research interest includes **Computer Vision, AIGC, and 3D Generation**.
- Microsoft Research Asia (MSRA) Fellowship Nomination Award 2022 (**33 in Asia**).
- CUHK Postgraduate Research Output Award 2023 (**1 in Faculty of Engineering**).

Education

- **The Chinese University of Hong Kong** Hong Kong
Ph.D. - Computer Science and Engineering (Advisor: Chi-Wing Fu) July 2020-May 2024
- **The Chinese University of Hong Kong** Hong Kong
MPhil - Computer Science and Engineering
- **Shanghai Jiao Tong University** China
Bachelor - Information Engineering

Experience

- **Carnegie Mellon University** United States
Postdoctoral Associate In the present
- **Adobe Research** United States
Research Intern July 2023-Oct 2023

Publications (Google Scholar)

- I have published **10+ first-authored** papers in top-tier venues such as CVPR, ICLR, SIGGRAPH, SIGGRAPH Asia, ACM TOG, IEEE TPAMI et al.
- Citations: **1400+**

* indicates equal contribution.

1. **Zero-shot 3D-Aware Text-driven Talking Avatar Generation:**
Xiuzhe Wu, Yang-Tian Sun, Handi Chen, Hang Zhou, Jingdong Wang, **Zhengzhe Liu**, Xiaojuan Qi
European Conference on Computer Vision (ECCV), 2024.
2. **Object-level Scene Deocclusion:**
Zhengzhe Liu, Qing Liu, Chirui Chang, Jianming Zhang, Daniil Pakhomov, Haitian Zheng, Zhe Lin, Daniel Cohen-Or, Chi-Wing Fu
SIGGRAPH 2024.
3. **CNS-Edit: 3D Shape Editing via Coupled Neural Shape Optimization:**
Jingyu Hu, Ka-Hei Hui, **Zhengzhe Liu**, Hao (Richard) Zhang, Chi-Wing Fu
SIGGRAPH 2024.
4. **Make-A-Shape: a Ten-Million-scale 3D Shape Model:**
Ka-Hei Hui, Aditya Sanghi, Arianna Rampini, Kamal Rahimi Malekshan, **Zhengzhe Liu**, Hooman Shayani, Chi-Wing Fu
International Conference on Machine Learning (ICML), 2024.
5. **EXIM: A Hybrid Explicit-Implicit Representation for Text-Guided 3D Shape Generation:**
Zhengzhe Liu, Jingyu Hu, Ka-Hei Hui, Xiaojuan Qi, Daniel Cohen-Or, Chi-Wing Fu.
SIGGRAPH Asia, 2023
Also presented in ACM Transactions on Graphics (TOG), 2023.
SIGGRAPH Asia Journal Track
6. **DreamStone: Image as Stepping Stone for Text-Guided 3D Shape Generation:**
Zhengzhe Liu, Peng Dai, Ruihui Li, Xiaojuan Qi, Chi-Wing Fu.
IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2023.
Impact Factor: 24.3
7. **ISS: Image as Stepping Stone for Text-Guided 3D Shape Generation:**
Zhengzhe Liu, Peng Dai, Ruihui Li, Xiaojuan Qi, Chi-Wing Fu.
International Conference on Learning Representations (ICLR), 2023.
Spotlight, Acceptance rate: 5.6%

8. **You Only Need One Thing One Click: Self-Training for Weakly Supervised 3D Scene Understanding:**
Zhengzhe Liu, Xiaojuan Qi, Chi-Wing Fu.
Book chapter in the incoming book “Towards Realistic 3D Deep Learning: Algorithms and Applications” edited by Xiaoli Li, Xulei Yang, and Hao Su. World Scientific, 2023
9. **CLIPXPlore: Coupled CLIP and Shape Spaces for 3D Shape Exploration:**
Jingyu Hu*, Ka-Hei Hui*, **Zhengzhe Liu**, Hao (Richard) Zhang, Chi-Wing Fu
SIGGRAPH Asia, 2023.
10. **Texture Generation on 3D Meshes with Point-UV Diffusion:**
Xin Yu, Peng Dai, Wenbo Li, Lan Ma, **Zhengzhe Liu (Co-corresponding author)**, Xiaojuan Qi
International Conference on Computer Vision (ICCV), 2023.
Oral, Acceptance rate: 2.4%
11. **Neural Wavelet-domain Diffusion for 3D Shape Generation, Inversion, and Manipulation:**
Jingyu Hu*, Ka-Hei Hui*, **Zhengzhe Liu**, Ruihui Li, Chi-Wing Fu
ACM Transactions on Graphics (TOG), 2023.
12. **Command-driven Articulated Object Understanding and Manipulation:**
Ruihang Chu, **Zhengzhe Liu**, Xiaoqing Ye, Xiao Tan, Xiaojuan Qi, Chi-Wing Fu, Jiaya Jia.
IEEE Conference on Computer Vision and pattern Recognition (CVPR), 2023.
13. **MGFN: Magnitude Contrastive Glance and Focus Network for Anomaly Detection:**
Yingxian Chen, **Zhengzhe Liu**, Zhang Baoheng, Wilton Fok, Xiaojuan Qi, Yik-Chung Wu.
AAAI Conference on Artificial Intelligence (AAAI), 2023.
Oral, Acceptance rate: 10.8%
14. **Towards Implicit Text-Guided 3D Shape Generation:**
Zhengzhe Liu, Yi Wang, Xiaojuan Qi, Chi-Wing Fu.
IEEE Conference on Computer Vision and pattern Recognition (CVPR), 2022.
15. **MEN: Mutual Enhancement Networks for Sign Language Recognition and Education:**
Zhengzhe Liu, Lei Pang, Xiaojuan Qi.
IEEE Transactions on Neural Networks and Learning Systems (TNNLS), 2022.
Impact factor: 14.3
16. **Sparse2Dense: Learning to Densify 3D Features for 3D Object Detection:**
Tianyu Wang, Xiaowei Hu, **Zhengzhe Liu**, Chi-Wing Fu.
Neural Information Processing Systems (NeurIPS), 2022
17. **TWIST: Two-Way Inter-label Self-Training for Semi-supervised 3D Instance Segmentation:**
Ruihang Chu, Xiaoqing Ye, **Zhengzhe Liu**, Xiao Tan, Xiaojuan Qi, Chi-Wing Fu, Jiaya Jia.
IEEE Conference on Computer Vision and pattern Recognition (CVPR), 2022.
18. **3D-to-2D Distillation for Indoor Scene Parsing:**
Zhengzhe Liu, Xiaojuan Qi, Chi-Wing Fu.
IEEE Conference on Computer Vision and pattern Recognition (CVPR), 2021.
Oral, Acceptance rate: 4.3%
19. **One Thing One Click: A Self-Training Approach for Weakly Supervised 3D Semantic Segmentation:**
Zhengzhe Liu, Xiaojuan Qi, Chi-Wing Fu.
IEEE Conference on Computer Vision and pattern Recognition (CVPR), 2021.
20. **Global Texture Enhancement for Fake Face Detection in the Wild:**
Zhengzhe Liu, Xiaojuan Qi, Philip, H.S. Torr.
IEEE Conference on Computer Vision and pattern Recognition (CVPR), 2020.
21. **GeoNet++: Iterative Geometric Neural Network with Edge-Aware Refinement for Joint Depth and Surface Normal Estimation:**
Xiaojuan Qi*, **Zhengzhe Liu***, Renjie Liao, Philip H. S. Torr, Raquel Urtasun, Jiaya Jia.
IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2020
Impact factor 24.3
22. **3D Motion Decomposition for RGBD Future Dynamic Scene Synthesis:**
Xiaojuan Qi*, **Zhengzhe Liu***, Qifeng Chen, Jiaya Jia.
IEEE Conference on Computer Vision and pattern Recognition (CVPR), 2019.

23. **Self-Boosted Gesture Interactive System with ST-Net:**
Zhengzhe Liu*, Xiaojuan Qi*, Lei Pang.
ACM Multimedia Conference (ACM MM), 2018.
24. **GeoNet: Geometric Neural Network for Joint Depth and Surface Normal Estimation:**
Xiaojuan Qi, Renjie Liao, **Zhengzhe Liu**, Raquel Urtasun, Jiaya Jia.
IEEE Conference on Computer Vision and pattern Recognition (CVPR), 2018.
25. **Augmented Feedback in Semantic Segmentation under Image Level Supervision:**
Xiaojuan Qi, **Zhengzhe Liu**, Jianping Shi, Jiaya Jia.
European Conference on Computer Vision (ECCV), 2016.

Preprints

26. **What Matters in Detecting AI-Generated Videos like Sora?:**
Chirui Chang, **Zhengzhe Liu**, Xiaoyang Lv, Xiaojuan Qi
Submitted to Neural Information Processing Systems (NeurIPS), 2024.
27. **MGFN++: Magnitude Contrastive Glance and Focus Network for Anomaly Detection:**
Yingxian Chen, Wei-Bin Kou, Wilton Fok, **Zhengzhe Liu (Co-corresponding author)**, Xiaojuan Qi, Yik-Chung Wu
Submitted to International Journal of Computer Vision (IJCV).

Professional Activities

- **Conference Reviewer:** CVPR, ICCV, ECCV, ICLR, NeurIPS, AAAI, SIGGRAPH Asia, ICML
- **Journal Reviewer:** TPAMI, IJCV, TIP, TMM, TNNLS, TCSVT, PR, TITS, CIBM
- **Invited Talks:**
CVPR 2024. C3DV: 2nd Workshop On Compositional 3D Vision.
CVPR 2022. Workshop on ScanNet Indoor Scene Understanding Challenge

Honors and Awards

- CUHK Postgraduate Research Output Award (**1 in Faculty of Engineering**)
- MSRA Fellowship Nomination Award 2022 (**33 in Asia**)
- Shanghai Outstanding Graduate Award
- Meritorious Winner of MCM (Mathematical Contest in Modeling)
- Outstanding League Member Award
- Litian Tangren Scholarship (CNY 10,000)
- Excellent Student Scholarship, Shanghai Jiao Tong University (3 times)

Teaching Assistants

- CSCI 3170. Introduction to Database Systems
- ENGG 2020. Digital Logic and Systems
- CSCI 3180. Principles of Programming Languages
- CSCI 1580. Visual Programming
- ENGG 1100. Engineering and Design