

LANYUN ZHU

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WORK EXPERIENCES

Nanyang Technological University	Research Fellow, Sep 2025- Now
• Working with Prof. Bihan Wen in Rapid-Rich Object Search Lab (ROSE) Lab	
• Conducting research on multimodal large models and AI for science.	
City University of Hong Kong	Postdoctoral Fellow, Apr 2025- Sep 2025
• Working with Prof. Shiqi Wang	
• Conducting research on multimodal large models and multimodal agents.	
• Completing a research paper about MLLM accepted by NeurIPS2025.	

EDUCATION

Singapore University of Technology and Design (SUTD)	Singapore
<i>Ph.D. in Information Systems and Technology Design (ISTD)</i>	2021.9 - 2025.1
Advisor: Prof. Jun Liu , Prof. Soh De Wen	
Beihang University (BUAA)	Beijing, China
<i>B.S. in Instrumentation Science</i>	2016.9 - 2020.6

RESEARCH DIRECTIONS

Multimodal Learning, LLM, Computer Vision, Resource-Efficient Learning, Image Segmentation

SELECTED PUBLICATIONS

For the full list, please see my [Google Scholar page](#)

*: co-first author; #: corresponding author

Conference Papers

1. **Lanyun Zhu**, Deyi Ji, Tianrun Chen, Haiyang Wu, Shiqi Wang, “Retrv-R1: A Reasoning-Driven MLLM Framework for Universal and Efficient Multimodal Retrieval”, *Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2025.
2. **Lanyun Zhu**, Deyi Ji, Tianrun Chen, Haiyang Wu, De Wen Soh, Jun Liu, “CPCF: A Cross-Prompt Contrastive Framework for Referring Multimodal Large Language Models”, *International Conference on Machine Learning (ICML)*, 2025.
3. Qianxiong Xu, **Lanyun Zhu**, Xuanyi Liu, Guosheng Lin, Cheng Long, Ziyue Li, Rui Zhao, “Unlocking the Power of SAM 2 for Few-Shot Segmentation”, *International Conference on Machine Learning (ICML)*, 2025.
4. Deyi Ji, Yuekui Yang, Haiyang Wu, Shaoping Ma, Tianrun Chen, **Lanyun Zhu**#, “RAVEN: Robust Advertisement Video Violation Temporal Grounding via Reinforcement Reasoning”, *Annual Meeting of the Association for Computational Linguistics (ACL)*, Industry Track, 2025.
5. Deyi Ji, Yuekui Yang, Haiyang Wu, Shaogang Tang, Peng Shu, Xudong Chen, Shaoping Ma, Tianrun Chen, **Lanyun Zhu**#, “RAVEN++: Pinpointing Fine-Grained Violations in Advertisement Videos with Active Reinforcement Reasoning”, *Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Industry Track, 2025.
6. **Lanyun Zhu**, Tianrun Chen, Qianxiong Xu, Xuanyi Liu, Deyi Ji, Haiyang Wu, De Wen Soh, Jun Liu, “POOPEN: Preference-Based Optimization and Ensemble for LVLM-Based Reasoning Segmentation”, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2025.
7. Qianxiong Xu, Xuanyi Liu, **Lanyun Zhu**, Guosheng Lin, Cheng Long, Ziyue Li, Rui Zhao, “Hybrid Mamba for Few-Shot Segmentation”, *Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2024.
8. Deyi Ji, Feng Zhao, **Lanyun Zhu**, Wenwei Jin, Hongtao Lu, Jieping Ye, “Discrete Latent Perspective Learning for Segmentation and Detection”, *International Conference on Machine Learning (ICML)*, 2024.
9. **Lanyun Zhu**, Tianrun Chen, Deyi Ji, Jieping Ye, Jun Liu, “LLaFS: When Large Language Models Meet Few-Shot Segmentation”, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.

10. **Lanyun Zhu**, Tianrun Chen, Jianxiong Yin, Simon See, Jun Liu, "Addressing Background Context Bias in Few-Shot Segmentation through Iterative Modulation", *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.
11. **Lanyun Zhu**, Tianrun Chen, Jianxiong Yin, Simon See, Jun Liu, "Learning Gabor Texture Features for Fine-Grained Recognition", *International Conference on Computer Vision (ICCV)*, 2023.
12. **Lanyun Zhu***, Tianrun Chen*, Jianxiong Yin, Simon See, Jun Liu, "Continual Semantic Segmentation with Automatic Memory Sample Selection", *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023.
13. **Lanyun Zhu***, Deyi Ji*, Shiping Zhu, Weihao Gan, Wei Wu, Junjie Yan, "Learning Statistical Texture for Semantic Segmentation", *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021.
14. Xiao Fu, Shangzhan Zhang, Tianrun Chen, Yichong Lu, **Lanyun Zhu**, Xiaowei Zhou, Andreas Geiger, Yiyi Liao. "Panoptic NeRF: 3D-to-2D Label Transfer for Panoptic Urban Scene Segmentation", *International Conference on 3D Vision (3DV)*, 2022.

Journal Papers

1. **Lanyun Zhu**, Tianrun Chen, Deyi Ji, Peng Xu, Jieping Ye, Jun Liu, "LLaFS++: Few-Shot Image Segmentation with Large Language Models", *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2025.
2. **Lanyun Zhu**, Tianrun Chen, Deyi Ji, Jieping Ye, Jun Liu, "Not Every Patch is Needed: Towards a More Efficient and Effective Backbone for Video-based Person Re-identification", *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2025.
3. **Lanyun Zhu**, Tianrun Chen, Jianxiong Yin, Simon See, De Wen Soh, Jun Liu, "Replay Master: Automatic Sample Selection and Effective Memory Utilization for Continual Semantic Segmentation", *IEEE Transactions on Image Processing (TIP)*, 2025.
4. Ying Zang, Yuanqi Hu, Xinyu Chen, Yuxia Xu, Suhui Wang, Chunan Yu, **Lanyun Zhu**, Deyi Ji, Xin Xu, Tianrun Chen, "From Air to Wear: Personalized 3D Digital Fashion with AR/VR Immersive 3D Sketching", *IEEE Transactions on Visualization and Computer Graphics (TVCG)*. 2025.
5. Ying Zang, Runlong Cao, Jianqi Zhang, Yidong Han, Ziyu Cao, Wenjun Hu, Didi Zhu, Zejian Li, **Lanyun Zhu**, Deyi Ji, Tianrun Chen, "Let human sketches help: Empowering challenging image segmentation task with freehand sketches", *IEEE Transactions on Multimedia (TMM)*, 2025.
6. Tianrun Chen, Chunan Yu, Yuanqi Hu, Jing Li, Tao Xu, Runlong Cao, **Lanyun Zhu**, Ying Zang, Yong Zhang, Zejian Li, Linyun Sun, "Img2CAD: Conditioned 3D CAD Model Generation from Single Image with Structured Visual Geometry (TII)", *IEEE Transactions on Industrial Informatics (TII)*, 2025.
7. Tianrun Chen, Chaotao Ding, **Lanyun Zhu**, Ying Zang, Yiyi Liao, Zejian Li, Lingyun Su, "Reality3DSketch: Rapid 3D Modeling of Objects from Single Free-hand Sketches", *IEEE Transactions on Multimedia (TMM)*, 2023.
8. Yan Wang, Jian Cheng, Yixin Chen, Shuai Shao, **Lanyun Zhu**, Zhenzhou Wu, Tao Liu, Haogang Zhu. "FVP: Fourier Visual Prompting for Source-Free Unsupervised Domain Adaptation of Medical Image Segmentation", *IEEE Transactions on Medical Imaging (TMI)*, 2023.
9. Zhikang Liu, **Lanyun Zhu**. "Label-guided Attention Distillation for Lane Segmentation", *Neurocomputing*, 2021.

ACADEMIC SERVICE

Journal Associate Editor (AE)

- The Visual Computer

Organizer

- ICME2024 Grand Challenge -The 2nd Multi-Modal Video Reasoning and Analyzing Competition

Conference Reviewer

- IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
- Advances in Neural Information Processing Systems (NeurIPS)
- International Conference on Machine Learning (ICML)
- International Conference on Learning Representations (ICLR)
- International Conference on Computer Vision (ICCV)
- European Conference on Computer Vision (ECCV)
- Association for the Advancement of Artificial Intelligence (AAAI)

- ACM International Conference on Multimedia (ACM MM)

Journal Reviewer

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- International Journal of Computer Vision (IJCV)
- IEEE Transactions on Image Processing (TIP)
- IEEE Transactions on Multimedia (TMM)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE Transactions on Industrial Informatics (TII)
- Pattern Recognition (PR)

SELECTED HONORS AND AWARDS

First Prize, Fengru Cup 2019 (Top 2%, 2/100+)	2019
<i>1st</i> Class Scholarship for Academic Achievements, BUAA	2019
Second Prize, Fengru Cup 2020 (Top 10%)	2020
Honorable Mention, Mathematical Contest In Modeling	2019