LANYUN ZHU

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EDUCATION

Singapore University of Technology and Design (SUTD) — Singapore
Ph.D. in Information Systems and Technology Design (ISTD) — 2021.9 -
Advisor: Prof. Jun Liu, Prof. Soh De Wen

Beihang University (BUAA) — Beijing, China
B.S. in Instrumentation Science — 2016.9 - 2020.6

RESEARCH DIRECTIONS

Computer Vision, Large Vision-Language Models, Image Segmentation, Resource-Efficient Learning

SELECTED PUBLICATIONS

For the full list, please see my Google Scholar page

Conference Papers

1. 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.

2. 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. [paper]

3. **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. [paper]

4. **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. [paper]

5. **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. [paper]

6. **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. [paper]

7. **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. [paper]

8. Tianrun Chen, **Lanyun Zhu**, Chaotao Ding, Runlong Cao, Shangzhan Zhang, Yan Wang, Zejian Li, Lingyun Sun, Papa Mao, Ying Zang. "SAM-adapter: Adapting SAM in Underperformed Scenes", ***ICCV2023 Workshop.*** [paper] [code] (Github 900 Stars)

9. 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. [paper]

Journal Papers

1. 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.*** [paper]

2. 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.*** [paper]

3. Zhikang Liu, **Lanyun Zhu**. "Label-guided Attention Distillation for Lane Segmentation", ***Neurocomputing.*** [paper]

Preprint Papers

1. **Lanyun Zhu**, Deyi Ji, Tianrun Chen, Peng Xu, Jieping Ye, Jun Liu, "IBD: Alleviating Hallucinations in Large Vision-Language Models via Image-Biased Decoding", *arxiv preprint, in submission.* [paper]

2. Deyi Ji, Siqi Gao, **Lanyun Zhu**, Yiru Zhao, Peng Xu, Hongtao Lu, Feng Zhao, "View-Centric Multi-Object Tracking with Homographic Matching in Moving UAV", *arxiv preprint, in submission.* [paper]

3. **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", *in submission*

Intern Experiences

Johns Hopkins University   Research Intern,   Jul 2021-Aug 2021

Brief introduction: Working on research projects about using depth estimation to enhance semantic segmentation, advised by Prof. Alan Yuille.

- Implementing a multi-task model to enhance semi-supervised segmentation by using depth estimation as a joint task.
- Achieving 3% improvement compared with SOTA

Sensetime   Research Intern,   Jun 2020-Jul 2021

Brief introduction: Working on research works and engineering projects about semantic segmentation.

- Designing models for soot area segmentation, achieving 64% mIoU.
- Completing a paper about semantic segmentation published on CVPR2021.

Megvii   Research Intern,   Sep 2019-May 2020

Brief introduction: Working on research works and engineering projects about semantic segmentation and lane line detection.

- Designing models for lane line detection used for traffic condition monitoring.
- Completing a paper about lane line detection published on Neurocomputing.

Academic Service

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)
- European Conference on Computer Vision (ECCV)
- Association for the Advancement of Artificial Intelligence (AAAI)
- ACM International Conference on Multimedia (ACM MM)
- IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)

Journal Reviewer

- International Journal of Computer Vision (IJCV)
- IEEE Transactions on Image Processing (TIP)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE Transactions on Industrial Informatics (TII)

Skills

- Programming Languages: Python > MATLAB == C
- Deep Learning Framework: PyTorch » Tensorflow

Selected Honors and Awards

First Prize, Fengru Cup 2019 (Top 2%, 2/100+)	2019
1st *Class* Scholarship for Academic Achievements, BUAA	2019
Second Prize, Fengru Cup 2020 (Top 10%)	2020
Honorable Mention, Mathematical Contest In Modeling	2019
AISG Ph.D. Fellowship	2021 – Present