

LEI YAO

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EDUCATION

Hong Kong Polytechnic University (PolyU) <i>Ph.D. Candidate, Electrical and Electronic Engineering</i>	<i>Aug. 2023 - Present</i>
Huazhong University of Science and Technology (HUST) <i>Master, Mechanical Engineering</i>	<i>Sep. 2020 - Jun. 2023</i> GPA: 88.14
Huazhong University of Science and Technology (HUST) <i>Bachelor, Measurement Control Technology and Instruments</i>	<i>Sep. 2016 - Jun. 2020</i> GPA: 87.9

INTERSHIP AND EXPERIENCE

RoboticsX Lab, Tencent <i>Research Intern</i>	<i>May. 2022 - Oct. 2022</i>
Imperial College London (IC) <i>Winter School</i>	<i>Jan. 2019 - Feb. 2019</i>

SELECTED PUBLICATIONS

1. GaussianCross: Cross-modal Self-supervised 3D Representation Learning via Gaussian Splatting [\[paper\]](#)[\[code\]](#)
ACMMM 2025
Lei Yao, Yi Wang, Yi Zhang, Moyun Liu, Lap-Pui Chau
2. LaSSM: Efficient Semantic-Spatial Query Decoding via Local Aggregation and State Space Models for 3D Instance Segmentation [\[code\]](#)
Submitted to TCSVT
Lei Yao, Yi Wang, Yawen Cui, Moyun Liu, Lap-Pui Chau
3. SGIFormer: Semantic-guided and Geometric-enhanced Interleaving Transformer for 3D Instance Segmentation [\[page\]](#)[\[paper\]](#)[\[code\]](#)
IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), 2024
Lei Yao, Yi Wang, Moyun Liu, Lap-Pui Chau
4. A Survey of Embodied Learning for Object-Centric Robotic Manipulation [\[paper\]](#)[\[code\]](#)
Machine Intelligence Research, 2025
Ying Zheng*, **Lei Yao***, Yuejiao Su, Yi Zhang, Yi Wang, Sicheng Zhao, Yiyi Zhang, Lap-Pui Chau
5. Dynamic Bottleneck with a Predictable Prior for Image-based Deep Reinforcement Learning [\[paper\]](#)[\[code\]](#)
Expert Systems With Applications, 2024
Bang You, Bing Chen, **Lei Yao**, Youping Chen, Jingming Xie
6. A Data-Driven Phantom Zeros Prediction Algorithm for Traction Force Sensor in Kinesthetic Demonstration [\[paper\]](#)
IEEE International Conference on Robotics and Biomimetics (ROBIO), 2023 Oral Presentation
Lei Yao, Bing Chen, Moyun Liu, Jingming Xie, Youping Chen, Lei He
7. An Integrated Compensation Method for the Force Disturbance of a Six-Axis Force Sensor in Complex Manufacturing Scenarios [\[paper\]](#)
Sensors, 2021
Lei Yao, Qingguang Gao, Dailin Zhang, Wanpeng Zhang, Youping Chen

OTHER PUBLICATIONS

1. Evaluation of Range Sensing-based Place Recognition for Long-term Urban Localization
IEEE Transactions on Intelligent Vehicles (TIV), 2024
Weixin Ma, Huan Yin, **Lei Yao**, Yuxiang Sun, Zhongqing Su
2. Few-shot Class-agnostic Counting with Occlusion Augmentation and Localization
IEEE International Symposium on Circuits and Systems (ISCAS), 2024
Yuejiao Su, Yi Wang, **Lei Yao**, Lap-Pui Chau
3. Towards Better Unguided Depth Completion via Cross-Modality Knowledge Distillation in the Frequency Domain
IEEE Transactions on Intelligent Vehicles (TIV), 2024
Moyun Liu, Bing Chen[#], Youping Chen, Jingming Xie, **Lei Yao**[#], Yang Zhang, Qin Hu, Jiawei Du, Joey Tianyi Zhou
4. SemiT-SAM: Building a Visual Foundation Model for Tooth Instance Segmentation on Panoramic Radiographs
MICCAI Workshop, 2024
Jing Hao, Moyun Liu, Lei He, **Lei Yao**, James Kit Hon Tsoi, Kuo Feng Hung
5. BF3D: Bi-directional Fusion 3D Detector With Semantic Sampling and Geometric Mapping
Image and Vision Computing, 2023
Yijie Zhu, Jingming Xie, Moyun Liu, **Lei Yao**, Youping Chen

HONORS AND AWARDS

- | | |
|--|------------|
| • PolyU Presidential PhD Fellowship (PPPFs) | 2023-2026 |
| • National Scholarship (Top 2%) | 2021 |
| • National Encouragement Scholarship | 2019 |
| • Merit Graduate Student | 2021 |
| • Outstanding Graduate | 2023, 2020 |
| • First-class Scholarship for Postgraduates | 2021, 2020 |
| • GoerTek Scholarship (Sponsored by <i>GoerTek Co., Ltd.</i>) | 2019 |

SERVICES

TA:

- EIE546 Video Technology in PolyU, 2023Fall, 2024Fall
- EIE522 Pattern Recognition: Theory and Applications in PolyU, 2024Spring, 2025Spring
- EIE4100 Computer Vision and Pattern Recognition in PolyU, 2024Fall

Reviewer:

- International Conference on Learning Representations (ICLR'25)
- IEEE Transactions on Circuits and Systems for Video Technology
- IEEE Transactions on Multimedia
- Pattern Recognition
- Expert Systems with Applications
- The Visual Computer