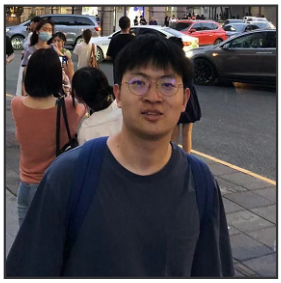
Zhenyu **Li**

PhD Student at KAUST · CV Researcher

4700 King Abdullah University of Science and Technology Thuwal 23955-6900. Kingdom of Saudi Arabia

(+966) 566152875 | zhenyu.li.1@kaust.edu.sa | zhyever.github.io | zhyever



Summary

I'm currently a second-year PhD student adviced by Prof. Peter Wonka at King Abdullah University of Science and Technology (KAUST).

My research interests are in the area of computer vision and computer graphics. I am mainly focusing on 3D scene perception and understanding. I have conducted several research projects, including monocular depth estimation, multi-modal self-supervised pre-training, 3D object detection from multi-sensors, *etc*.

I'm self-driven and enthusiastic about researching. I'm familiar with most computer vision techniques, have much development experience, and can explore topics independently. I look for working on more solid and interesting work!

Education

King Abdullah University of Science and Technology — *Thuwal, Saudi Arabia*

PhD in Computer Science — *Sep. 2023 - Present*

Harbin Institute of Technology — *Harbin, China*

M.S. in Computer Science and Technology — *Sep. 2021 - Jul. 2023*

- Rank 2 in the comprehensive assessment of computer science department

Harbin Institute of Technology — *Harbin, China*

B.S. in Computer Science and Technology (89.58/100, top 25%) — *Sep. 2017 - Jul. 2021*

- Got exemption from examination and scholarship for postgraduate study in Harbin Institute of Technology

Work Experience

Didi Cargo — *Beijing, China*

Elite Research Intern — *Sep. 2022 - Mar. 2023*

- Researched semi-supervised algorithms for monocular 3D object detection. One paper as the first author was published on Arxiv.

SenseTime Research — *Shanghai, China*

Research Intern — *Jan. 2022 - Jul. 2022*

- Researched unsupervised domain adaptation algorithms for monocular 3D object detection. One paper as the first author was accepted to ECCV 2022.
- Deployed the aforementioned unsupervised domain adaptation algorithm in industrial project with GAC Group. Achieved excepted goals.
- Researched domain generalization and unsupervised domain adaptation algorithms for monocular 3D object detection. One paper as the first author was published on Arxiv.

SenseTime Research — *Shanghai, China*

Perception Algorithm Development Intern — *Mar. 2021 - Sep. 2021*

- Built up a ReID dataset based on the ground-truth system, utilized the Fast-ReID framework to train a ReID model, and developed the ReID model to the ADAS system.
- Built and deployed the DeepSort multi-object tracking algorithm in the ADAS system (C++), including importing appearance representation from the ReID model and adopting the cascade association strategy. The algorithm formed a patent for SenseTime.
- Researched multi-object tracking algorithms.
- Researched multi-modal contrastive learning algorithms for spatial-aware visual representations to benefit 3D-related downstream tasks. One paper as the first author was accepted to AAAI 2022.

Research

Codebase

- Monocular-Depth-Estimation-Toolbox: `https://github.com/zhyever/Monocular-Depth-Estimation-Toolbox`.
- Support several SoTA methods and obtain **800+ stars**.

First Author

- **Zhenyu Li**, Shariq Farooq Bhat, Peter Wonka. PatchRefiner: Leveraging Synthetic Data for Real-Domain High-Resolution Monocular Metric Depth Estimation ECCV 2024.
- **Zhenyu Li**, Shariq Farooq Bhat, Peter Wonka. PatchFusion: An End-to-End Tile-Based Framework for High-Resolution Monocular Metric Depth Estimation. CVPR 2024. **It obtains 900+ stars**.
- **Zhenyu Li**, Zehui Chen, Ang Li, Liangji Fang, Qinhong Jiang, Xianming Liu, Junjun Jiang. Unsupervised Domain Adaptation for Monocular 3D Object Detection via Self-Training. ECCV 2022.
- **Zhenyu Li**, Zehui Chen, Jialei Xu, Xianming Liu, Junjun Jiang. LiteDepth: Digging into Fast and Accurate Depth Estimation on Mobile Devices. ECCVW 2022.
- **Zhenyu Li**, Zehui Chen, Ang Li, Liangji Fang, Qinhong Jiang, Xianming Liu, Junjun Jiang, Bolei Zhou, Hang Zhao. SimIPU: Simple 2D Image and 3D Point Cloud Unsupervised Pre-Training for Spatial-Aware Visual Representations. AAAI 2022.
- **Zhenyu Li**, Xuyang Wang, Xianming Liu, Junjun Jiang. BinsFormer: Revisiting Adaptive Bins for Monocular Depth Estimation. Transactions on Image Processing. Rank 1^{st} on KITTI benchmark. (Feb, 2022).
- **Zhenyu Li**, Zehui Chen, Junjun Jiang, Xianming Liu. DepthFormer: Exploiting Long-Range Correlation and Local Information for Accurate Monocular Depth Estimation. Machine Intelligence Research. Rank 1^{st} on KITTI benchmark. (Nov, 2021).
- **Zhenyu Li**, Junjun Jiang, and Xianming Liu. Enhancing Self-supervised Monocular Depth Estimation via Discrete Disparity and Uncertainty. Letter for IEEE/CAA Journal of Automatica Sinica 2022.
- **Zhenyu Li**, Zehui Chen, Zehui Chen, Ang Li, Liangji Fang, Qinhong Jiang, Xianming Liu, Junjun Jiang. Towards Model Generalization for Monocular 3D Object Detection. Arxiv.
- **Zhenyu Li**, Zhipeng Zhang, Heng Fan, Yuan He, Ke Wang, Xianming Liu, Junjun Jiang. Augment and Criticize: Exploring Informative Samples for Semi-Supervised Monocular 3D Object Detection. Arxiv.

Co-Author

- Wamiq Reyaz Para, Abdelrahman Eldesokey, **Zhenyu Li**, Pradyumna Reddy, Jiankang Deng, Peter Wonka. AvatarMMC: 3D Head Avatar Generation and Editing with Multi-Modal Conditioning. Arxiv.
- Zehui Chen, **Zhenyu Li**, Shuo Wang, Dengpan Fu, Feng Zhao. Learning from Noisy Data for Semi-Supervised 3D Object Detection. ICCV 2023.
- Zehui Chen, **Zhenyu Li**, Shiquan Zhang, Liangji Fang, Qinhong Jiang, Feng Zhao. Graph-DETR3D: Rethinking Overlapping Regions for Multi-View 3D Object Detection. ACM MM 2022.
- Zehui Chen, **Zhenyu Li**, Shiquan Zhang, Liangji Fang, Qinhong Jiang, Feng Zhao. Deformable Feature Aggregation for Dynamic Multi-Modal 3D Object Detection. ECCV 2022.
- Zehui Chen, **Zhenyu Li**, Shiquan Zhang, Liangji Fang, Qinhong Jiang, Feng Zhao, Bolei Zhou, Hang Zhao. Pixel-Instance Feature Aggregation for Multi-Modal 3D Object Detection. IJCAI 2022.
- Junjun Jiang, **Zhenyu Li**, Xianming Liu. Deep Learning based Monocular Depth Estimation: A Survey. Chinese Journal of Computers 2022.

Honors & Awards

2024	**KAUST CEMSE Dean's List Scholarship,** top 20% of PhD students	*Saudi Arabia*
2023	**VCL 2023 Multitask Learning for Robustness Challenge (ICCV 2023 Workshop),** 1st Place	*Online*
2022	**SSLAD 2022 3D Object Detection Challenge (ECCV 2022 Workshop),** 3rd Place	*Online*
2022	**Mobile AI & AIM 2022 Monocular Depth Estimation Challenge (ECCV 2022 Workshop),** 2nd Place	*Online*
2022	**China National Scholarship,** Harbin Institute of Technology	*China*
2022	**Chunhui Scholarship at Harbin Institute of Technology,** Final List	*China*