

Zhenyu Li

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Highlights

Highly Cited: 900+ citations in total of my publications as a **second-year** PhD student

Widely Impactful: ~ **2K** stars on GitHub

Experienced: 4+ years of research experience

Prestigious affiliations: SenseTime Research, Didi Cargo

Keywords: computer vision; deep learning; depth estimation; diffusion model; 3D perception and understanding; multi-modality learning; semi-supervised learning; 3D large foundation model

Experience

Elite Research Intern

Didi Cargo (ADAS team)

Beijing, China

Sep. 2022 - Mar. 2023

- Researched semi-supervised algorithms for monocular 3D object detection. The solution improves the model performance with limited labeled data and was presented in the [paper](#).

Research Intern

SenseTime Research (ADAS team)

Shanghai, China

Jan. 2022 - Jul. 2022

- Researched unsupervised domain adaptation algorithms for monocular 3D object detection. It led to an [ECCV 2024](#) paper.
- Deployed the aforementioned unsupervised domain adaptation algorithm in an industrial project with GAC Group. Achieved excepted goals.
- Researched domain generalization algorithms for monocular 3D object detection (a follow-up work of the aforementioned paper). It was presented in the [paper](#).
- Collaborated with other team members and researched 3D object detection. It led to an [ICLR 2023](#) paper.

Perception Algorithm Development Intern

SenseTime Research (ADAS team)

Shanghai, China

Mar. 2021 - Sep. 2021

- Built up a ReID dataset based on the ground-truth system, trained a ReID model, and developed the ReID model for the ADAS system.
- Built and deployed a multi-object tracking algorithm for the ADAS system (C++), including importing appearance representation from the ReID model and adopting the cascade association strategy.
- Researched multi-modal contrastive learning algorithms for spatial-aware visual representations to benefit 3D-related downstream tasks. It led to an [AAAI 2022](#) paper.
- Collaborated with other team members and researched 3D object detection. It led to an [IJCAI 2022](#) paper and an [ECCV 2022](#) paper.

Selected First Author Publications

- **PatchRefiner: Leveraging Synthetic Data for Real-Domain High-Resolution Monocular Metric Depth Estimation.** [ECCV 2024](#). Zhenyu Li, Shariq Farooq Bhat, Peter Wonka. [Project link](#).
- **PatchFusion: An End-to-End Tile-Based Framework for High-Resolution Monocular Metric Depth Estimation.** [CVPR 2024](#). Zhenyu Li, Shariq Farooq Bhat, Peter Wonka. [Project link](#) (900+ stars on GitHub).
- **Unsupervised Domain Adaptation for Monocular 3D Object Detection via Self-Training.** [ECCV 2022](#). Zhenyu Li, Zehui Chen, Ang Li, Liangji Fang, Qinrong Jiang, Xianming Liu, Junjun Jiang
- **SimIPU: Simple 2D Image and 3D Point Cloud Unsupervised Pre-Training for Spatial-Aware Visual Representations.** [AAAI 2022](#). Zhenyu Li, Zehui Chen, Ang Li, Liangji Fang, Qinrong Jiang, Xianming Liu, Junjun Jiang, Bolei Zhou, Hang Zhao. [Project link](#).
- **BinsFormer: Revisiting Adaptive Bins for Monocular Depth Estimation.** [TIP](#). Zhenyu Li, Xuyang Wang, Xianming Liu, Junjun Jiang. [Project link](#).

- **DepthFormer: Exploiting Long-Range Correlation and Local Information for Accurate Monocular Depth Estimation.** *MIR*. Zhenyu Li, Zehui Chen, Xianming Liu, Junjun Jiang. [Project link](#).
- **PatchRefiner V2: Fast and Lightweight Real-Domain High-Resolution Metric Depth Estimation.** *Under Review*. Zhenyu Li, Wenqing Cui, Shariq Farooq Bhat, Peter Wonka
- **Amodal Depth Anything: Amodal Depth Estimation in the Wild.** *Under Review*. Zhenyu Li, Mykola Lavreniuk, Jian Shi, Shariq Farooq Bhat, Peter Wonka. [Project link](#).

Other Selected Publications

- **Learning from Noisy Data for Semi-Supervised 3D Object Detection.** *ICCV 2023*. Zehui Chen, Zhenyu Li, Shuo Wang, Dengpan Fu, Feng Zhao
- **BEVDistill: Cross-Modal BEV Distillation for Multi-View 3D Object Detection.** *ICLR 2023*. Zehui Chen, Zhenyu Li, Shiquan Zhang, Liangji Fang, Qinhong Jiang, Feng Zhao. [Project link](#).
- **Deformable Feature Aggregation for Dynamic Multi-Modal 3D Object Detection.** *ECCV 2022*. Zehui Chen, Zhenyu Li, Shiquan Zhang, Liangji Fang, Qinhong Jiang, Feng Zhao. [Project link](#).
- **StereoCrafter-Zero: Zero-Shot Stereo Video Generation with Noisy Restart.** *Under Review*. Jian Shi, Zhenyu Li, Qian Wang, Peter Wonka. [Project link](#)
- **ImmersePro: End-to-End Stereo Video Synthesis Via Implicit Disparity Learning.** *Under Review*. Jian Shi, Zhenyu Li, Peter Wonka. [Project link](#).

Projects

Monocular Depth Estimation Toolbox

[Link](#) 

- Developed several monocular depth estimation methods with reproduced results for fair comparisons
- **900+** stars on [GitHub](#)

Education

King Abdullah University of Science and Technology (KAUST)	Thuwal, Saudi Arabia
<i>PhD in Computer Science, Advisor: Prof. Peter Wonka</i>	<i>Sep. 2023 - Present</i>
Harbin Institute of Technology (HIT)	Harbin, China
<i>MS in Computer Science, Advisor: Prof. Junjun Jiang. Program rank - 2/80+</i>	<i>Sep. 2021 - Jul. 2023</i>
Harbin Institute of Technology (HIT)	Harbin, China
<i>BS in Computer Science, Advisor: Prof. Junjun Jiang. GPA - 89.58/100</i>	<i>Sep. 2017 - Jul. 2021</i>

Awards

Dean's List Award , award to top students by KAUST CEMSE for their academic achievements	2024
ICCV VCL 2023 Multitask Learning for Robustness Challenge , 1st place	2023
ECCV SSLAD 2022 3D Object Detection Challenge , 3rd Place	2022
ECCV Mobile AI & AIM 2022 Monocular Depth Estimation Challenge , 2nd Place	2022
China National Scholarship	2022
Chunhui Scholarship , award to top students by Harbin Institute of Technology	2022

Skills

Technical Skills:

Languages (Years of Experience, Last Used): Python (6 years, current), C (7 years, 2018), C++ (3 years, 2021), Java (6 years, 2019).

Tools & Frameworks: Pytorch (profecient), Tensorflow (familiar), OpenMMLab Toolbox, Git, Pandas, Seaborn, Diffusers, Accelerator, Gradio.

Soft Skills:

Languages: Chinese (Mother Tongue), English (Fluent)

Teamwork: Can collaborate with team members with diverse backgrounds, resulting in enhanced efficiency.

Problem-solving: Proficient in identifying issues and implementing solutions that exceed project objectives.

Adaptability for Projects: Can take advantages of previous experiences to adapt to various new projects.

Time Management: Expert in prioritizing tasks and managing schedules to maximize productivity.