

# Xin Li

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Degree	University	Major	Year	Supervisor
PhD	East China Normal University (985&211)	Computer Sci. and Tech.	2019-now	Liang He
Bachelor	China University of Petroleum (East China)(211)	Computer Sci. and Tech.	2015-2019	-

## Research Interests

- *Multi-sensor fusion, temporal fusion, incremental learning* in 3D object detection, 3D semantic segmentation for autonomous driving.
- Embodied AI, Knowledge-driven autonomous driving.

## Experience

- *Autonomous Driving Group (ADG), Shanghai AI Lab* (June'21-Now)
  - Research Intern, supervised by Dr. Botian Shi and Yikang Li
  - Participated Projects:
    - [1]. **Algorithm research and development:** Responsible for continuous optimization of algorithm performance in the direction of multi-modal fusion and multi-frame fusion. Based on the multi-modal fusion of lidar and images, we proposed a multi-modal method LoGoNet. It has surpassed all the latest methods on the Waymo 3D object detection Leaderboard, **ranked 1** (Oct. 2022), and the paper accepted by CVPR2023.
    - [2]. **Offline auto-labeling algorithm**, improved the 3d detection performance, participated in the development of the offline algorithm, developed offline perception algorithm DetZero, achieved **85.15 mAPH(L2)** in Waymo3D object detection Leaderboard performance, **ranked 1** ( Mar. 2023)

## Representative Publications

- [1]. **LoGoNet: Towards Accurate 3D Object Detection with Local-to-Global Cross-Modal Fusion**  
[Xin Li](#), Tao Ma, Yuenan Hou, Botian Shi, Yuchen Yang, Youquan Liu, Xingjiao Wu, Qin Chen, Yikang Li, Yu Qiao, Liang He  
*Computer Vision and Pattern Recognition Conference [CVPR 2023]*
- [2]. **Homogeneous Multi-modal Feature Fusion and Interaction for 3D Object Detection**  
[Xin Li](#), Botian Shi, Yuenan Hou, Xingjiao Wu, Tianlong Ma, Yikang Li, Liang He  
*European Conference on Computer Vision [ECCV 2022]*
- [3]. **DiLu: A Knowledge-Driven Approach to Autonomous Driving with Large Language Models**  
Licheng Wen\*, Daocheng Fu\*, [Xin Li\\*](#), Xinyu Cai, Tao Ma, Pinlong Cai, Min Dou, Botian Shi, Liang He, Yu Qiao  
*International Conference on Learning Representations [ICLR 2024]*
- [4]. **Robo3d: Towards robust and reliable 3d perception against corruptions**  
Lingdong Kong\*, Youquan Liu\*, [Xin Li\\*](#), Runnan Chen, Wenwei Zhang, Jiawei Ren, Liang Pan, Kai Chen, Ziwei Liu  
*International Conference and Computer Vision [ICCV 2023]*
- [5]. **Benchmarking 3D Perception Robustness to Common Corruptions and Sensor Failure**  
Lingdong Kong\*, Youquan Liu\*, [Xin Li\\*](#), Runnan Chen, Wenwei Zhang, Jiawei Ren, Liang Pan, Kai Chen, Ziwei Liu  
*ICLR Workshop on Scene Representations for Autonomous Driving 2023 [ICLRW 2023, Best Workshop Paper Award]*
- [6]. **SCPNet: Semantic Scene Completion on Point Cloud**  
Zhaoyang Xia, Youquan Liu, [Xin Li](#), Xinge Zhu, Yuexin Ma, Yikang Li, Yuenan Hou, Yu Qiao  
*Computer Vision and Pattern Recognition Conference [CVPR 2023, Highlight]*
- [7]. **UniSeg: A Unified Multi-Modal LiDAR Segmentation Network and the OpenPCSeg Codebase**  
Youquan Liu, Runnan Chen, [Xin Li](#), Lingdong Kong, Yuchen Yang, Zhaoyang Xia, Yeqi Bai, Xinge Zhu, Yikang Li, Yuenan Hou, Yu Qiao  
*International Conference and Computer Vision [ICCV 2023]*
- [8]. **DetZero: Rethinking Offboard 3D Object Detection with Long-term Sequential Point Clouds**  
Tao Ma, Xueming Yang, Hongbin Zhou, [Xin Li](#), Botian Shi, Junjie Liu, Yuchen Yang, Zhizheng Liu, Liang He, Yu Qiao, Yikang Li, Hongsheng Li  
*International Conference and Computer Vision [ICCV 2023]*

[9]. **Towards Knowledge-driven Autonomous Driving**

Xin Li, Yeqi Bai, Pinlong Cai, Licheng Wen, Daocheng Fu, Bo Zhang, Xuemeng Yang, Xinyu Cai, Tao Ma, Jianfei Guo, Xing Gao, Min Dou, Botian Shi, Yong Liu, Liang He, Yu Qiao

[Preprint]

[10]. **Multi-modal sensor fusion for auto driving perception: A survey**

Keli Huang, Botian Shi, Xiang Li, Xin Li, Siyuan Huang, Yikang Li

[Preprint]

#### Academic Service

- Reviewer for NeurIPS, CVPR, ICCV, ECCV, AAAI.

#### Projects

- **Awesome Knowledge-driven Autonomous Driving** *(Nov.'23-Now)*
  - <https://github.com/PJLab-ADG/awesome-knowledge-driven-AD>
- **Drive Like a Human: Rethinking Autonomous Driving with Large Language Models** *(Apr.'23-Now)*
  - <https://github.com/PJLab-ADG/DriveLikeAHuman>
- **Offline auto-labeling algorithm** *(Oct.'21-Mar.'23)*
  - <https://github.com/PJLab-ADG/DetZero>
  - Rank **1st** on WOD 3D Detection Leaderboard with 85.15 mAPH(L2)

#### Awards

- National Scholarship for Graduate Students, ECNU, (2020, 2023).
- Outstanding Student Cadres of Shandong Province, UPC, 2018.