Xiang Xu, Ph.D.

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Employment History

2021 – 2023 **Algorithm engineer,** Leapmotor Technologies Co. Ltd.

Education

2023 – 2027 **Ph.D.** in Computer Science and Technology
Nanjing University of Aeronautics and Astronautics, Nanjing, China
Advisor: Prof. Qingshan Liu

2018 – 2021 **M.S.** in Control Science and Engineering
Nanjing University of Information Science and Technology, Nanjing, China
Advisor: Prof. Qingshan Liu

2014 – 2018 **B.S.** in Electrical Engineering and Automation
Nanjing University of Information Science and Technology, Nanjing, China

Research Publications

Journal Articles

1. L. Kong, **X. Xu**, Y. Liu, *et al.*, "Largead: Large-scale cross-sensor data pretraining for autonomous driving," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2025.
2. L. Kong, **X. Xu**, J. Ren, *et al.*, "Multi-modal data-efficient 3d scene understanding for autonomous driving," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 47, no. 5, pp. 3748–3765, 2025.
3. **X. Xu**, L. Kong, H. Shuai, and Q. Liu, "Frnet: Frustum-range networks for scalable lidar segmentation," *IEEE Transactions on Image Processing*, vol. 34, pp. 2173–2186, 2025.
4. **X. Xu**, L. Kong, H. Shuai, *et al.*, "Enhanced spatiotemporal consistency for image-to-lidar data pretraining," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2025.
5. L. Zhu, S. Wang, Z. Zhao, **X. Xu**, and Q. Liu, "Ced-net: Contextual encoder-decoder network for 3d face reconstruction," *Multimedia Systems*, vol. 28, no. 5, pp. 1713–1722, 2022.
6. H. Shuai, **X. Xu**, and Q. Liu, "Backward attentive fusing network with local aggregation classifier for 3d point cloud semantic segmentation," *IEEE Transactions on Image Processing*, vol. 30, pp. 4973–4984, 2021.

Conference Proceedings

1. L. Kong, D. Lu, **X. Xu**, L. X. Ng, W. T. Ooi, and B. R. Cottereau, "Eventfly: Event camera perception from ground to the sky," in *IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2025, pp. 1472–1484.
2. L. Kong, **X. Xu**, J. Cen, *et al.*, "Calib3d: Calibrating model preferences for reliable 3d scene understanding," in *IEEE/CVF Winter Conference on Applications of Computer Vision*, 2025, pp. 1965–1978.

3. **X. Xu**, L. Kong, H. Shuai, L. Pan, Z. Liu, and Q. Liu, "Limoe: Mixture of lidar representation learners from automotive scenes," in *IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2025, pp. 27 368–27 379.
4. **X. Xu**, L. Kong, S. Wang, C. Zhou, and Q. Liu, "Beyond one shot, beyond one perspective: Cross-view and long-horizon distillation for better lidar representations," in *IEEE/CVF International Conference on Computer Vision*, 2025, pp. 25 506–25 518.
5. **X. Xu**, L. Kong, H. Shuai, *et al.*, "4d contrastive superflows are dense 3d representation learners," in *European Conference on Computer Vision*, 2024, pp. 58–80.
6. H. Shuai, **X. Xu**, and Q. Liu, "Waterfall-net: Waterfall feature aggregation for point cloud semantic segmentation," in *Chinese Conference on Pattern Recognition and Computer Vision*, 2022, pp. 28–40.
7. **X. Xu**, G. Huang, L. Hu, and Y. Wang, "Semantic-aware object detection for 3d point cloud," in *International Conference on Optics and Machine Vision*, vol. 12173, 2022, pp. 259–265.

arXiv Preprints

1. Y. Liu, L. Kong, W. Yang, *et al.*, *Veila: Panoramic lidar generation from a monocular rgb image*, 2025. arXiv: 2508.03690.
2. **X. Xu**, A. Liang, Y. Liu, *et al.*, *U4d: Uncertainty-aware 4d world modeling from lidar sequences*, 2025. arXiv: 2512.02982.
3. J. Sun, C. Qing, **X. Xu**, *et al.*, *An empirical study of training state-of-the-art lidar segmentation models*, 2024. arXiv: 2405.14870.
4. X. Wu, **X. Xu**, L. Kong, *et al.*, *Point transformer v3 extreme: 1st place solution for 2024 waymo open dataset challenge in semantic segmentation*, 2024. arXiv: 2407.15282.

Miscellaneous Experience

Research Projects

2023 **MMDetection3D**: OpenMMLab next-general platform for general 3D object detection
OpenMMLab, Shanghai AI Laboratory

Selected Honors

2024 **The first place** in the 2024 Waymo Open Dataset Challenge.

2018 **Outstanding Freshman Scholarship**, Nanjing University of Information Science and Technology.

2016 **The First Prize of National Undergraduate Electronics Design Contest** in Jiangsu Division.