

# XIANG LI (李祥)

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## WORK

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<b>University of Reading</b> Lecturer in Computer Science	2024.10 –
<b>King Abdullah University of Science and Technology</b> Postdoctoral Fellow, Supervisor: Mohamed Elhoseiny	2022.12 – 2024.10
<b>New York University</b> Postdoctoral Fellow, Supervisor: Yi Fang	2019.10 – 2022.07

## EDUCATION

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<b>University of Chinese Academy of Sciences</b> PhD. in Cartography and Geographic Information System, Supervisor: Tianhe Chi	2014.09 – 2019.06
<b>New York University</b> Visiting PhD, Supervisor: Yi Fang, Edward Wong	2017.12 – 2019.01
<b>Wuhan University</b> B.S. in Remote Sensing Science and Technology, rank: 1/80	2010.09 – 2014.06

## RESEARCH INTERESTS

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Large Vision-Language Model, Computer Vision, Remote Sensing Data Analysis

## PEER-REVIEWED CONFERENCE PAPERS

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- X Li**, J Ding, M Elhoseiny. VRSBench: A Versatile Vision-Language Benchmark Dataset for Remote Sensing Image Understanding. Thirty-eighth Annual Conference on Neural Information Processing Systems (**NeruIPS**), 2024. PDF
- M Ahmed, **X Li**, M Elhoseiny. 3DCoMPaT200: Language Grounded Large-Scale 3D Vision Dataset for Compositional Recognition. Thirty-eighth Annual Conference on Neural Information Processing Systems (**NeruIPS**), 2024.
- X Li**<sup>†</sup>, Jian Ding<sup>†</sup>, Z Chen, M Elhoseiny. Uni3DL: Unified Model for 3D and Language Understanding. The European Conference on Computer Vision (**ECCV**) 2024. PDF
- J Chen, D Zhu, X Shen, **X Li**, Z Liu, P Zhang, R Krishnamoorthi, V Chandra, Y Xiong, M Elhoseiny. MiniGPT-v2: Large Language Model as a Unified Interface for Vision-Language Multi-task Learning. arXiv. PDF
- D Zhu, J Chen, X Shen, **X Li**, M Elhoseiny. MiniGPT-4: Enhancing Vision-Language Understanding with Advanced Large Language Models. International Conference on Learning Representations (**ICLR**) 2024 (**>24K starts in GitHub**). PDF
- J Chen, D Zhu, K Haydarov, **X Li**, M Elhoseiny. Video chatcaptioner: Towards the enriched spatiotemporal descriptions, arXiv 2023. PDF
- F Khan<sup>†</sup>, **X Li**<sup>†</sup>, A Temple, M Elhoseiny. FishNet: A Large-scale Dataset and Benchmark for Fish Recognition, Detection, and Functional Traits Prediction. International Conference on Computer Vision (**ICCV**), 2023. PDF
- X Shen, **X Li**, M Elhoseiny. MoStGAN: Video Generation with Temporal Motion Styles, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023. PDF

9. S Yuan<sup>†</sup>, X Li<sup>†</sup>, H Huang, Y Fang. Meta-Det3D: Learn to Learn Few-Shot 3D Object Detection. Asian Conference on Computer Vision (ACCV), 2022, **Oral**. PDF
10. X Li<sup>\*†</sup>, C Wen<sup>†</sup>, H Huang, Y Fang. Unsupervised 3D Shape Representation Learning using Normalizing Flow. Asian Conference on Computer Vision (ACCV), 2022. PDF
11. H Huang, X Li, L Wang, Y Fang. 3D-MetaConNet: Meta-learning for 3D Shape Classification and Segmentation. International Conference on 3D Vision (3DV) 2021. PDF
12. H Huang, J Chen, X Li, L Wang, Y Fang. Robust Image Matching By Dynamic Feature Selection. British Machine Vision Conference (BMVC), 2020. PDF
13. S Yuan<sup>†</sup>, X Li<sup>†</sup>, Y Fang. 3DMotion-Net: Learning Continuous Flow Function for 3D Motion Prediction. The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2020. PDF
14. L Wang<sup>†</sup>, X Li<sup>†</sup>, Y Fang. Few-shot Learning of Part-specific Probability Space for 3D Shape Segmentation, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020. PDF
15. J Chen, L Wang, X Li, Y Fang. Arbicon-Net: Arbitrary Continuous Geometric Transformation Networks for Image Registration, Neural Information Processing Systems (NeurIPS), 2019. PDF
16. Y Hu, Y Chen, X Li, J Feng. Dynamic Feature Fusion for Semantic Edge Detection, International Joint Conferences on Artificial Intelligence (IJCAI), 2019. PDF
17. X Li, L Wang, Y Fang. PC-Net: Unsupervised Point Correspondence Learning with Neural Networks, International Conference on 3D Vision (3DV), 2019. PDF
18. X Li, H Cui, J Rizzo, E Wong, Y Fang. Cross-Safe: A computer vision-based approach to make all intersection-related pedestrian signals accessible for the visually impaired, Computer Vision Conference (CVC), 2019. (**best student paper nomination**) PDF

## PEER-REVIEWED JOURNAL PAPERS

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(<sup>†</sup> equal contribution, \* corresponding author)

19. Y Hu, J Yuan, C Wen, X Lu, X Li<sup>\*</sup>. RSGPT: A Remote Sensing Vision Language Model and Benchmark. ISPRS Journal of Photogrammetry and Remote Sensing (ISPRS JPRS), under review. PDF
20. J Zhou, W Li, Y Cao, H Cai, X Li<sup>\*</sup>. Few-shot Oriented Object Detection with Memorable Contrastive Learning in Remote Sensing Images, IEEE Transactions on Geoscience and Remote Sensing (TGRS), under review. (**top journal**, IF=8.2).
21. H Slim, X Li, Y Li, M Ahmed, M Ayman, U Upadhyay, A Abdelreheem, A Prajapati, S Pothigara, P Wonka, M Elhoseiny. 3DComPaT++: An improved Large-scale 3D Vision Dataset for Compositional Recognition. IEEE TPAMI, under review (**top journal**, IF=20.8).
22. W Li, J Zhou, Y Cao, G Jin, X Zhang, X Li. InfRS: Incremental Few-Shot Object Detection in Remote Sensing Images. IEEE Transactions on Geoscience and Remote Sensing (TGRS), 2024. (**top journal**, IF=8.2).
23. X Li<sup>†\*</sup>, C Wen<sup>†</sup>, Y Hu<sup>†</sup>, Z Yuan, X Zhu. Vision-Language Models in Remote Sensing: Current Progress and Future Trends. IEEE Geoscience and Remote Sensing Magazine (GRSM), 2024. (**top journal**, IF=14.6) PDF
24. X Li, C Wen, N Zhou. RS-CLIP: Zero Shot Remote Sensing Scene Classification via Contrastive Vision-Language Supervision. International Journal of Applied Earth Observation and Geoinformation (JAG), 2023. (**top journal**, IF=7.5) PDF
25. W Li, J Zhou, X Li, Y Cao, G Jin. Few-shot object detection on aerial imagery via deep metric learning and knowledge inheritance. International Journal of Applied Earth Observation and Geoinformation (JAG), 2023. (**top journal**, IF=7.5) PDF
26. C Wen, X Li, H Huang, Y Liu, Y Fang. 3D Shape Contrastive Representation Learning with Adversarial Examples. IEEE Transactions on Multimedia (TMM), 2023. (**top journal**, IF=7.3) PDF
27. L Wang, N Zhou, H Huang, X Li<sup>\*</sup>, Y Fang. GP-Aligner: Unsupervised Non-rigid Groupwise Point Set Registration Based On Optimized Group Latent Descriptor, IEEE Transactions on Geosciences and Remote Sensing (TGRS), 2022. (**top journal**, IF=8.2) PDF
28. X Li, L Wang, Y Fang. Unsupervised Category-Specific Partial Point Set Registration via Joint Shape Completion and Registration. IEEE Transactions on Visualization and Computer Graphics (TVCG), 2022. (**top journal**, IF=5.2) PDF
29. X Jiang, N Zhou, X Li<sup>\*</sup>. Few-Shot Segmentation of Remote Sensing Images using Deep Metric Learning. IEEE Geosciences and Remote Sensing Letters (GRSL), 2022. (IF=4.8) PDF

30. **X Li**, L Wang, Y Fang. Geometry-Aware Segmentation of Remote Sensing Images via implicit height estimation. *IEEE Geoscience and Remote Sensing Letters (GRSL)*, 2021. (IF=4.8) PDF
31. **X Li**<sup>†</sup>, J Deng<sup>†</sup>, Y Fang. Few-shot Object Detection on Remote Sensing Images. *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, 2021. (**top journal, IF=8.2, ESI highly cited paper**) PDF
32. N Zhou<sup>†</sup>, **X Li**<sup>†</sup>, Z Shen, T Wu, J Luo. Geo-parcel-based Change Detection Using Optical and SAR Images in Cloudy and Rainy Areas. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTAR)*, 2020. (**top journal, IF=5.5**) PDF
33. R Chen<sup>†</sup>, **X Li**<sup>†</sup>, Y Hu, L Peng. Road Extraction from Remote Sensing Images in Wildland-Urban Interface Areas. *IEEE Geosciences and Remote Sensing Letters (GRSL)*, 2020. (IF=4.8) PDF
34. **X Li**, M Wang, Y Fang. Height estimation from single aerial images using a deep ordinal regression network. *IEEE Geoscience and Remote Sensing Letters (GRSL)*, 2020. (IF=4.8, **ESI highly cited paper**) PDF
35. C Wen, **X Li**, L Peng, T Chi. Airborne LiDAR Point Cloud Classification with Graph Attention Convolution Neural Network. *ISPRS Journal of Photogrammetry and Remote Sensing (ISPRS J. P&RS)*, 2020. (**top journal, IF=12.7**) PDF
36. **X Li**, L Wang, M Wang, C Wen, N Zhou, Y Fang. Density-Aware Convolutional Networks with Context Encoding for Airborne LiDAR Point Cloud Classification, *ISPRS Journal of Photogrammetry and Remote Sensing (ISPRS J. P&RS)*, 2020. (**top journal, IF=12.7**) PDF
37. **X Li**<sup>†</sup>, C Wen<sup>†</sup>, L W, Y Fang. Topology Constrained Shape Correspondence, *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 2020. (**top journal, IF=5.2**) PDF
38. C Wen, L Yang, L Peng, **X Li**<sup>\*</sup>, T Chi. Directionally Constrained Fully Convolutional Neural Network For Airborne Lidar Point Cloud Classification, *ISPRS Journal of Photogrammetry and Remote Sensing (ISPRS J. P&RS)*, 2020. (**top journal, IF=12.7**) PDF
39. C Wen, S Liu, X Yao, L Peng, **X Li**, Y Hu, T Chi. A novel spatiotemporal convolutional long short-term neural network for air pollution prediction. *Science of The Total Environment*, 2019. (**top journal, IF=9.8, ESI highly cited paper**) PDF
40. **X Li**, X Yao, Y Fang. Building-A-Nets: Robust building extraction from high-resolution Remote Sensing images with adversarial networks, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTAR)*, 2018. (**top journal, IF=5.5**) PDF
41. Y Hu, L Peng, **X Li**, X Yao, H Lin, T Chi. A novel evolution tree for analyzing the global energy consumption structure. *Energy*, 2018. (**top journal, IF=9.0**) PDF
42. **X Li**, L Peng, X Yao. S Cui, Y Hu, C You, T Chi. Long short-term memory neural network for air pollutant concentration predictions: Method development and evaluation, *Environmental Pollution (EP)*, 2017. (**top journal, IF=8.9, ESI highly cited paper**) PDF
43. **X Li**, L Peng, Y Hu, J Shao, T Chi. Deep learning architecture for air quality predictions, *Environmental Science and Pollution Research*, 2016. (IF=5.8) PDF

## TEACHING

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Successfully completed all requirements for the Higher Education Teaching Certificate through Harvard's Derek Bok Center for Teaching and Learning with HarvardX (Certificate).

## SERVICES

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- **Guest Editor** of the special issue "Vision Language Models in Remote Sensing" of the journal **IEEE GRSM**.
- Journal Review: *IEEE TGRS*, *IEEE TIP*, *IEEE TVCG*, *IEEE TCSVT*, *RSE*, *ISPRS JPRS*, etc.
- Conference Review: *CVPR 2022/2023/2024*, *ICCV 2021/2023*, *ECCV 2022*, *NeruIPS 2023/2024*, *ICLR 2024*, *AAAI 2022/2023/2024*, etc.
- Workshop organizer: Challenge organizers of the **1st & 2nd workshop on compositional 3D vision and 3DComPaT dataset challenge** (*CVPR 2023/2024*).

## HONORS

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- **ICCV 2021 Outstanding reviewer**
- 2020 & 2021, NYU Abu Dhabi Postdoctoral Non-travel Award

- **2018, Outstanding research paper award (top 30), RADI, CAS.**
- **2017, National Scholarship**
- **2017, China Scholarship Council scholarship**
- 2012, Seagate Scholarship, Wuhan University
- **2011, National Scholarship**