



Xiaokang (Nate) Zhang

SPECIALLY-APPOINTED PROFESSOR

Wuhan University of Science and Technology, Wuhan, China

+86 15549063933 | natezhangxk@gmail.com | xkzhang.info | [zxk688](https://github.com/zxk688) | [Google Scholar](https://scholar.google.com/citations?user=zxk688)

“Trying to do better.”

Education

Wuhan University PHD PHOTOGRAMMETRY AND REMOTE SENSING • Supervisor: Prof. Wenzhong Shi	Wuhan, China 2013 - 2018
Wuhan University MS SURVEYING AND MAPPING ENGINEERING • Supervisor: Prof. Jianya Gong	Wuhan, China 2011 - 2013
Shandong Normal University BS GEOGRAPHY	Jinan, China 2007 - 2011

Professional Experience

Specially-appointed Professor SCHOOL OF INFORMATION SCIENCE AND ENGINEERING, WUHAN UNIVERSITY OF SCIENCE AND TECHNOLOGY	Wuhan, China 2023-Present
Research Associate LSGI, THE HONG KONG POLYTECHNIC UNIVERSITY	Hong Kong 2022-2023
Postdoctoral Fellow & Research Scientist SCHOOL OF SCIENCE AND ENGINEERING, THE CHINESE UNIVERSITY OF HONG KONG, SHENZHEN	Shenzhen, China 2020-2022
Postdoctoral Fellow LSGI, THE HONG KONG POLYTECHNIC UNIVERSITY	Hong Kong 2019-2020
Research Assistant LSGI, THE HONG KONG POLYTECHNIC UNIVERSITY	Hong Kong 2015-2017

Research Interests

Remote sensing, machine learning, pattern recognition, data fusion, image analysis and processing.

Featured Publications

PUBLISHED

- Yu, W., **Zhang, X.***, Das, S., Zhu, X. X., & Ghamisi, P. (2024). MaskCD: A Remote Sensing Change Detection Network Based on Mask Classification. *IEEE Transactions on Geoscience and Remote Sensing*.
- Sui, J., Ma, Y., Yang, W., **Zhang, X.***, Pun, M. O., & Liu, J. (2024). Diffusion Enhancement for Cloud Removal in Ultra-Resolution Remote Sensing Imagery. *IEEE Transactions on Geoscience and Remote Sensing*, 62: 1-14.
- Ma, X., **Zhang, X.***, Pun, M. O. (2024). Rs3mamba: Visual state space model for remote sensing images semantic segmentation. *IEEE Geoscience and Remote Sensing Letters*, 21:1-5.
- Wen, Y., Ma, X., **Zhang, X.***, & Pun, M. O. (2024). GCD-DDPM: A generative change detection model based on difference-feature guided DDPM. *IEEE Transactions on Geoscience and Remote Sensing*, 62: 1-16.

- Ma, X., **Zhang, X.***, Pun, M. O., & Liu, M. (2024). A multilevel multimodal fusion transformer for remote sensing semantic segmentation. *IEEE Transactions on Geoscience and Remote Sensing*, 62: 1-15.
- Zhang, X.**, Yu, W., Pun, M. O., & Shi, W. (2023). Cross-domain landslide mapping from large-scale remote sensing images using prototype-guided domain-aware progressive representation learning. *ISPRS Journal of Photogrammetry and Remote Sensing*, 197, 1-17.
- Zhang, X.**, Zhang, B., Yu, W., & Kang, X. (2023). Federated deep learning with prototype matching for object extraction from very-high-resolution remote sensing images. *IEEE Transactions on Geoscience and Remote Sensing*, 61, 1-16.
- Ma, X., **Zhang, X.***, Wang, Z., & Pun, M. O. (2023). Unsupervised domain adaptation augmented by mutually boosted attention for semantic segmentation of vhr remote sensing images. *IEEE Transactions on Geoscience and Remote Sensing*, 61, 1-15.
- Zhang, X.**, Yu, W., Ma, X., & Kang, X. (2023). Weakly Supervised Local-Global Anchor Guidance Network for Landslide Extraction With Image-Level Annotations. *IEEE Geoscience and Remote Sensing Letters*.
- Ma, X., Huang, Y., **Zhang, X.***, Pun, M. O., & Huang, B. (2023). Cloud-EGAN: Rethinking CycleGAN from a feature enhancement perspective for cloud removal by combining CNN and transformer. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*.
- Sui, J., Ma, X., **Zhang, X.***, & Pun, M. O. (2023). Gcrdn: Global context-driven residual dense network for remote sensing image super-resolution. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*.
- Huang, Y., Ma, X., **Zhang, X.**, Pun, M. O. (2023, July). CycleGAN-Based Cloud Removal from a Feature Enhancement Perspective by Transformer. In *IGARSS 2023* (pp. 3772-3775). IEEE.
- Sui, J., Ma, X., **Zhang, X.**, Pun, M. O. (2023, July). Dtrn: Dual transformer residual network for remote sensing super-resolution. In *IGARSS 2023* (pp. 6041-6044). IEEE.
- Lv, Z., Yang, X., **Zhang, X.***, & Benediktsson, J. A. (2022). Object-based sorted-histogram similarity measurement for detecting land cover change with VHR remote sensing images. *IEEE Geoscience and Remote Sensing Letters*, 19, 1-5.
- Zhang, X.**, Yu, W., & Pun, M. O. (2022). Multilevel deformable attention-aggregated networks for change detection in bitemporal remote sensing imagery. *IEEE Transactions on Geoscience and Remote Sensing*, 60, 1-18.
- Yu, W., **Zhang, X.***, & Pun, M. O. (2022). Cloud removal in optical remote sensing imagery using multiscale distortion-aware networks. *IEEE Geoscience and Remote Sensing Letters*, 19, 1-5.
- Ma, X., **Zhang, X.***, & Pun, M. O. (2022). A crossmodal multiscale fusion network for semantic segmentation of remote sensing data. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 15, 3463-3474.
- Ma, X., **Zhang, X.**, Pun, M. O., Liu, M. (2022, July). MSFNET: multi-stage fusion network for semantic segmentation of fine-resolution remote sensing data. In *IGARSS 2022* (pp. 2833-2836). IEEE.
- Zhang, B., **Zhang, X.**, Pun, M. O., & Liu, M. (2022, July). Prototype-based clustered federated learning for semantic segmentation of aerial images. In *IGARSS 2022*(pp. 2227-2230). IEEE.
- Yu, W., **Zhang, X.**, Pun, M. O., & Liu, M. (2021, July). A hybrid model-based and data-driven approach for cloud removal in satellite imagery using multi-scale distortion-aware networks. In *2021 IEEE IGARSS* (pp. 7160-7163). IEEE.
- Zhang, X.**, Yu, W., Pun, M. O., & Liu, M. (2021, July). Style transformation-based change detection using adversarial learning with object boundary constraints. In *2021 IEEE IGARSS* (pp. 3117-3120). IEEE.
- Zhang, X.**, Pun, M. O., & Liu, M. (2021). Semi-supervised multi-temporal deep representation fusion network for landslide mapping from aerial orthophotos. *Remote Sensing*, 13(4), 548.
- Zhang, X.**, Shi, W., Lv, Z., & Peng, F. (2019). Land cover change detection from high-resolution remote sensing imagery using multitemporal deep feature collaborative learning and a semi-supervised chan-verse model. *Remote Sensing*, 11(23), 2787.
- Zhang, X.**, Shi, W., Lv, Z. (2019). Uncertainty assessment in multitemporal land use/cover mapping with classification system semantic heterogeneity. *Remote Sensing*, 11(21), 2509.
- Lv, Z. Y., Liu, T. F., Zhang, P., Benediktsson, J. A., Lei, T., & **Zhang, X.** (2019). Novel adaptive histogram trend similarity approach for land cover change detection by using bitemporal very-high-resolution remote sensing images. *IEEE Transactions on Geoscience and Remote Sensing*, 57(12), 9554-9574.
- Lv, Z. Y., Shi, W., **Zhang, X.**, & Benediktsson, J. A. (2018). Landslide inventory mapping from bitemporal high-resolution remote sensing images using change detection and multiscale segmentation. *IEEE journal of selected topics in applied earth observations and remote sensing*, 11(5), 1520-1532.
- Zhang, X.**, Shi, W., Hao, M., Shao, P., & Lyu, X. (2017). Level set incorporated with an improved MRF model for unsupervised change detection for satellite images. *European Journal of Remote Sensing*, 50(1), 202-210.
- Zhang, X.**, Shi, W., Liang, P., & Hao, M. (2017). Level set evolution with local uncertainty constraints for unsupervised change detection. *Remote Sensing Letters*, 8(8), 811-820.

UNDER REVIEW

Zhang, X., Wu, W., Zhang, M., Yu, W., & Ghamisi, P. (2024). Prototypical Unknown-Aware Multiview Consistency Learning for Open-Set Cross-Domain Remote Sensing Image Classification. **(submitted to IEEE TGRS)**

Ma, X., **Zhang, X.***, Ding, X., Pun, M. O., & Ma, S. (2024). Frequency Decomposition-Driven Unsupervised Domain Adaptation for Remote Sensing Image Semantic Segmentation. arXiv preprint arXiv:2404.04531. **(submitted to IEEE TGRS)**

Ma, X., Wu, Q., Zhao, X., **Zhang, X.***, Pun, M. O., & Huang, B. (2023). SAM-Assisted Remote Sensing Imagery Semantic Segmentation with Object and Boundary Constraints. arXiv preprint arXiv:2312.02464. **(submitted to IEEE TGRS)**

Sui, J., Ma, X., **Zhang, X.***, & Pun, M. O. (2024). Adaptive Semantic-Enhanced Denoising Diffusion Probabilistic Model for Remote Sensing Image Super-Resolution. arXiv preprint arXiv:2403.11078. **(submitted to IEEE JSTARS)**

Teaching Experience

Spring 2024	MACHINE VISION , For international postgraduates	English
Spring 2024	ARTIFICIAL INTELLIGENCE , For Chinese undergraduates	Mandarin
Fall 2016	LIVING ON A DYNAMIC EARTH , Teaching Assistant	English

Awards, Fellowships, & Grants

2024-2027	As PI , National Natural Science Foundation of China under grant 42371374	CHY 500,000
2024-2025	As PI , Grant from Chinese Academy of Fishery Sciences	CHY 50,000
2024-2028	As PI , Hundred Talents Program of Hubei Province	CHY 500,000
2023-2027	As PI , Chutian Scholars Program of Hubei Province	CHY 500,000
2023-2024	As PI , Grant from China Southern Power Grid Co., Ltd	CHY 150,000
2023-2025	As PI , Hubei LuoJia Laboratory Fund	CHY 30,000
2021	Owner , The Geneva International Exhibition of Inventions	Gold Award
2020-2022	As PI , China Postdoctoral Science Foundation under grant 2020M682038	CHY 80,000
2019-2021	As PI , National Natural Science Foundation of China under grant 41801323	CHY 293,000
2020-2022	As a major participant , National Key R&D Program	CHY 19280,000
2019-2020	As a major participant , Otto Poon Charitable Foundation	HKD 5800,000
2019-2020	As a major participant , Hong Kong University Grants Committee	HKD 442,000
2017	Owner , Surveying and Mapping Science and Technology Progress Award	Special award

Outreach & Professional Development

SERVICE AND OUTREACH

2023-2024	Guest editor , Remote Sensing	
2024	Oral and Poster , IEEE International Geoscience and Remote Sensing Symposium (IGARSS)	Athens, Greece
2023	Oral and Session Chair , Global Smart Cities Summit (GSCS 2023) cum The 3rd International Conference on Urban Informatics (ICUI 2023)	Hong Kong
2023	Oral and Poster , IEEE International Geoscience and Remote Sensing Symposium (IGARSS)	California, USA
2022	Committee , IEEE Wireless and Optical Communications Conference (WOCC 2022)	Shenzhen, China
2021	Session Chair , IEEE Computing, Communications and IoT Applications Conference (ComComAp 2021)	Shenzhen, China
2022	Oral , IEEE International Geoscience and Remote Sensing Symposium (IGARSS)	Kuala Lumpur Malaysia
2021	Oral , IEEE International Geoscience and Remote Sensing Symposium (IGARSS)	Brussels, Belgium

PEER REVIEW

Remote Sensing of Environment
ISPRS Journal of Photogrammetry and Remote Sensing
International Journal of Applied Earth Observation and Geoinformation
Information Fusion

IEEE Transactions on Neural Networks and Learning Systems
IEEE Transactions on Geoscience and Remote Sensing
IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
IEEE Geoscience and Remote Sensing Letters
Resources, Environment and Sustainability
International Journal of Digital Earth
Knowledge-Based Systems
Expert Systems With Applications
Engineering Applications of Artificial Intelligence
Remote Sensing
Ecological Indicators
Pattern Recognition
Neurocomputing
International Journal of Intelligent Systems
Frontiers in Environmental Science
Sustainability
Earth Science Informatics
Advances in Space Research
Mathematics
Electronics
Signal, Image and Video Processing
Journal of Electronic Imaging
IEEE Access
Sensors
Applied Sciences

Communication reviewer for *the National Natural Science Foundation of China*

PROFESSIONAL MEMBERSHIPS

IEEE Senior Member, IEEE GRSS Member

ISUI Member

ISPRS Individual Member

CSIG Member, Technical Committee of Remote Sensing Images