

Xi-Le Zhao

Personal Information

Address: School of Mathematical Sciences / Research Center for Image and Vision Computing, University of Electronic Science and Technology of China, Chengdu, 611731, China

E-mail: xlzhao122003@163.com

Homepage: <https://zhaoxile.github.io/>

Google Scholar Citations: 9,600+

World's Top 2% Scientists list (Lifetime), IEEE Senior Member

Research Interests: High-Dimensional Signal and Image Processing, Artificial Intelligence

Education

09/2009 – 12/2012	University of Electronic Science and Technology of China Ph. D. in Applied Mathematics (Prof. Ting-Zhu Huang)
10/2011 – 06/2012	Hong Kong Baptist University Joint Ph. D. Student (Prof. Michael K. Ng)
09/2006 – 06/2009	University of Electronic Science and Technology of China M.A. in Computational Mathematics (Prof. Ting-Zhu Huang)

Working

07/2017 - Current	University of Electronic Science and Technology of China, Professor
07/2023 - 08/2023	Center for Intelligent Multidimensional Data Analysis (CIMDA) Limited, Research Scientist (Prof. Hong Yan, IEEE Fellow)
01/2020 - 02/2020	The University of Hong Kong, Research Associate (Prof. Michael K. Ng)
01/2019 - 02/2019	The Hong Kong Polytechnic University, Research Fellow (Prof. Xiaojun Chen)
09/2016 - 08/2017	Instituto Superior Técnico, Visiting Scholar (Prof. Jose M. Bioucas Dias, IEEE Fellow)
08/2015 - 06/2017	University of Electronic Science and Technology of China, Associate Professor
02/2013 - 06/2014	Hong Kong Baptist University, Postdoc (Prof. Michael K. Ng)
01/2013 - 07/2015	University of Electronic Science and Technology of China, Lecturer

Selected Publications (*indicates corresponding author)

1. **Xi-Le Zhao**, Jing-Hua Yang, Tian-Hui Ma, Tai-Xiang Jiang*, Michael K. Ng, and Ting-Zhu Huang, Tensor Completion via Complementary Global, Local, and Nonlocal Priors, *IEEE Trans. Image Process.*, 2022, 31: 984-999

2. Yi-Si Luo, **Xi-Le Zhao***, Tai-Xiang Jiang, Yi Chang, Michael K. Ng, Chao Li, Self-Supervised Nonlinear Transform-Based Tensor Nuclear Norm for Multi-Dimensional Image Recovery, *IEEE Trans. Image Process.*, 2022, 31: 3793-3808
3. Tai-Xiang Jiang, Michael K. Ng, **Xi-Le Zhao***, and Ting-Zhu Huang, Framelet Representation of Tensor Nuclear Norm for Third-Order Tensor Completion, *IEEE Trans. Image Process.*, 2020, 29: 7233-7244
4. Tai-Xiang Jiang, Ting-Zhu Huang*, **Xi-Le Zhao***, Liang-Jian Deng, Yao Wang, FastDeRain: A Novel Video Rain Streak Removal Method Using Directional Gradient Priors, *IEEE Trans. Image Process.*, 2019, 28: 2089-2102
5. Jian-Li Wang, Ting-Zhu Huang*, **Xi-Le Zhao***, Tai-Xiang Jiang, Michael K. Ng, Multi-Dimensional Visual Data Completion via Low-Rank Tensor Representation under Coupled Transform, *IEEE Trans. Image Process.*, 2021, 30: 3581-3596
6. Yong Chen, Wenzhen Lai, Wei He, **Xi-Le Zhao**, Jinshan Zeng, Hyperspectral Compressive Snapshot Reconstruction via Coupled Low-Rank Subspace Representation and Self-Supervised Deep Network, *IEEE Trans. Image Process.*, 2020, 33: 926-941
7. Zhigang Jia, Qiyu Jin, Michael K. Ng, Xi-Le Zhao, Non-Local Robust Quaternion Matrix Completion for Large-Scale Color Image and Video Inpainting, *IEEE Trans. Image Process.*, 2022, 31: 3868-3883
8. Yong Chen, Ting-Zhu Huang, Wei He, Naoto Yokoya, **Xi-Le Zhao**, Hyperspectral Image Compressive Sensing Reconstruction Using Subspace-Based Nonlocal Tensor Ring Decomposition, *IEEE Trans. Image Process.*, 2022, 29: 6813-6828
9. Fan Wang, **Xi-Le Zhao**, Michael K. Ng, Multiplicative Noise and Blur Removal by Framelet Decomposition and l_1 -Based L-Curve Method, *IEEE Trans. Image Process.*, 2016, 25: 3581-3596
10. Chuan Chen, Michael K. Ng, **Xi-Le Zhao**, Alternating Direction Method of Multipliers for Nonlinear Image Restoration Problems, *IEEE Trans. Image Process.*, 2015, 24: 33-43
11. Yi-Si Luo, **Xi-Le Zhao***, De-Yu Meng*, Revisiting Nonlocal Self-Similarity from Continuous Representation, *IEEE Trans. Pattern Anal. Mach. Intell.*, 2025, 47: 450-468
12. Yi-Si Luo, **Xi-Le Zhao***, Zhe-Min Li, M. K. Ng, De-Yu Meng*, Low-Rank Tensor Function Representation for Multi-Dimensional Data Processing, *IEEE Trans. Pattern Anal. Mach. Intell.*, 2024, 46: 3351-3369
13. Yi Chang, Yun Guo; Yuntong Ye, Changfeng Yu, Lin Zhu, **Xi-Le Zhao**, Unsupervised Deraining: Where Asymmetric Contrastive Learning Meets Self-Similarity, *IEEE Trans. Pattern Anal. Mach. Intell.*, 2024, 46: 2638-2657
14. Sheng Liu, **Xi-Le Zhao***, Jin-Song Leng, Ben-Zheng Li, Jing-Hua Yang, Xin-Yu Chen, High-Order Tensor Singular Value Decomposition from Basic Element Perspective, *IEEE Trans. Signal Process.*, 2024, 72: 4589-4603
15. Zhiyu Liu, Zhi Han, Yandong Tang, **Xi-Le Zhao**, Yao Wang, Low-Tubal-Rank Tensor Recovery via Factorized Gradient Descent, *IEEE Trans. Signal Process.*, 2024, 72: 5470-5483
16. Guoyong Zhang, Xiao Fu, Jun Wang, **Xi-Le Zhao**, Mingyi Hong, Spectrum Cartography via Coupled Block-Term Tensor Decomposition, *IEEE Trans. Signal Process.*, 2020, 68: 3660-3675
17. Yu-Chun Miao, **Xi-Le Zhao***, Jian-Li Wang, Xiao Fu, Yao Wang, Snapshot Compressive Imaging

- Using Domain-Factorized Deep Video Prior, *IEEE Trans. Comput. Imaging*, 2024, 10: 93-102
18. Ben-Zheng Li, **Xi-Le Zhao***, Jian-Li Wang, Yong Chen, Tai-Xiang Jiang, and Jun Liu, Tensor Completion via Collaborative Sparse and Low-Rank Transforms, *IEEE Trans. Comput. Imaging*, 2021, 7: 1289-1303
 19. Ye-Tao Wang, **Xi-Le Zhao***, Tai-Xiang Jiang, Liang-Jian Deng, Yi Chang, and Ting-Zhu Huang, Rain Streaks Removal for Single Image via Kernel-Guided Convolutional Neural Network, *IEEE Trans. Neural Netw. Learn. Syst.*, 2021, 32: 3664-3676
 20. Jie Lin, Ting-Zhu Huang*, **Xi-Le Zhao***, Teng-Yu Ji, Qibin Zhao, Tensor Robust Kernel PCA for Multi-dimensional Data, *IEEE Trans Neural Netw. Learn Syst.*, 2024, 36: 2662-2674
 21. Jian-Li Wang, Ting-Zhu Huang*, **Xi-Le Zhao***, Yi-Si Luo, Tai-Xiang Jiang, CoNoT: Coupled Nonlinear Transform-Based Low-Rank Tensor Representation for Multidimensional Image Completion, *IEEE Trans. Neural Netw. Learn. Syst.*, 2024, 35: 8969-8983
 22. Tai-Xiang Jiang, **Xi-Le Zhao**, Hao Zhang, Michael Ng*, Dictionary Learning with Low-Rank Coding Coefficients for Tensor Completion, *IEEE Trans. Neural Netw. Learn. Syst.*, 2023, 34: 932-946
 23. Shengjia Wang, Zhiguo Wang, **Xi-Le Zhao**, Xiaojing Shen, An Unbalanced Optimal Transport-Based Approach for Robust Dictionary Learning, *IEEE Trans. Neural Netw. Learn. Syst.*, 2025, 36: 11149-11163
 24. Yong Chen, Xinfeng Gui, Jinshan Zeng, **Xi-Le Zhao**, Wei He, Combining Low-Rank and Deep Plug-and-Play Priors for Snapshot Compressive Imaging, *IEEE Trans. Neural Netw. Learn. Syst.*, 2024, 35: 16396-16408
 25. Hao Zhang, **Xi-Le Zhao***, Tai-Xiang Jiang, Michael K. Ng, and Ting-Zhu Huang, Multiscale Feature Tensor Train Rank Minimization for Multidimensional Image Recovery, *IEEE Trans. Cybern.*, 2022, 52: 13395-13410
 26. Zhi-Long Han, Ting-Zhu Huang*, **Xi-Le Zhao***, Ben-Zheng Li, Meng Ding, Topology-Induced Low-Rank Tensor Representation for Spatio-Temporal Traffic Data Imputation, *IEEE Trans. Knowl. Data Eng.*, 2026, 38(2): 1349-1363
 27. Zhi-Long Han, Ting-Zhu Huang*, **Xi-Le Zhao***, Hao Zhang, Wei-Hao Wu, Nested Fully-Connected Tensor Network Decomposition for Multi-Dimensional Visual Data Recovery, *IEEE Trans. Circuits Syst. Video Technol.*, 2024, 34: 10092-10106
 28. Sheng Liu, Jinsong Leng*, **Xi-Le Zhao***, Haijin Zeng, Yao Wang, Jing-Hua Yang, Learnable Spatial-Spectral Transform-Based Tensor Nuclear Norm for Multi-Dimensional Visual Data Recovery, *IEEE Trans. Circuits Syst. Video Technol.*, 2024, 34: 3633-3646
 29. Qin Jiang, **Xi-Le Zhao***, Wei-Hao Wu, Wen-Jie Zheng, Jie Lin, An Arbitrary Mode-3 Dimensional Tensor-Tensor Product for Tensor Train Decomposition From Interaction Perspective, *IEEE Trans. Circuits Syst. Video Technol.*, accepted
 30. Liu Yang, Shiqiao Gu, Chenyang Shen, **Xi-Le Zhao**, Qinghua Hu, Skeleton Neural Networks via Low-Rank Guided Filter Pruning, *IEEE Trans. Circuits Syst. Video Technol.*, 2023, 33: 7197-7211
 31. Ting-Wei Zhou, **Xi-Le Zhao***, Jian-Li Wang, Yi-Si Luo, Min Wang, Xiao-Xuan Bai, Hong Yan, DTR: A Unified Deep Tensor Representation Framework for Multimedia Data Recovery, *IEEE Trans. Multimedia*, accepted

32. Jian-Li Wang, **Xi-Le Zhao***, Heng-Chao Li, Ke-Xiang Cao, Jiaqing Miao, Ting-Zhu Huang, Unsupervised Domain Factorization Network for Thick Cloud Removal of Multi-temporal Remotely Sensed Images, *IEEE Trans. Geosci. Remote. Sens.*, 2023, 61, Art. no. 5405912
33. Yun-Yang Liu, **Xi-Le Zhao***, Yu-Bang Zheng, Tian-Hui Ma, and Hongyan Zhang, Hyperspectral Image Restoration by Tensor Fibered Rank Constrained Optimization and Plug-and-Play Regularization, *IEEE Trans. Geosci. Remote Sens.*, 2022, 60, Art. no. 5500717
34. Zhi-Long Han, Ting-Zhu Huang*, **Xi-Le Zhao***, Hao Zhang, Yun-Yang Liu, Multi-Dimensional Data Recovery via Feature-based Fully-Connected Tensor Network Decomposition, *IEEE Trans. Big Data*, 2024, 10: 386-399
35. Hao Zhang, Ting-Zhu Huang*, **Xi-Le Zhao***, Shu-Qin Zhang, Jin-Yu Xie, Tai-Xiang Jiang, Michael K. Ng, Learnable Transform-Assisted Tensor Decomposition for Spatial-Irregular Multidimensional Data Recovery, *ACM Trans. Knowl. Discovery Data*, 2024, 19, Art. no. 12
36. Yu-Bang Zheng, **Xi-Le Zhao***, Junhua Zeng, Chao Li, Qibin Zhao, Heng-Chao Li, Ting-Zhu Huang, SVDinsTN: An Integrated Method for Tensor Network Representation with Efficient Structure Search, In *Proc. IEEE Conf. Comput. Vis. Pattern Recognit. (CVPR)*, 2024, 26254-26263
37. Xiao-Le Tang, **Xi-Le Zhao***, Jun Liu*, Jian-Li Wang, Yu-Chun Miao, Tie-Yong Zeng, Uncertainty-Aware Unsupervised Image Deblurring with Deep Residual Prior, In *Proc. IEEE Conf. Comput. Vis. Pattern Recognit. (CVPR)*, 2023: 9883-9892
38. Yi-Si Luo, **Xi-Le Zhao***, Deyu Meng, and Tai-Xiang Jiang, HLRTF: Hierarchical Low-Rank Tensor Factorization for Inverse Problems in Multi-Dimensional Imaging, In *Proc. IEEE Conf. Comput. Vis. Pattern Recognit. (CVPR)*, 2022, 19281-19290
39. Yu-Bang Zheng, Ting-Zhu Huang*, **Xi-Le Zhao***, Qibin Zhao, and Tai-Xiang Jiang, Fully-Connected Tensor Network Decomposition and Its Application to Higher-Order Tensor Completion, In *Proc. AAAI Conf. Artif. Intell. (AAAI)*, 2021, 35: 11071-11078

Editor/Guest Editor

Guest Editor

- IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing Special Issue
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- Remote Sensing
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Reviewer

- Proceedings of the IEEE
- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Transactions on Image Processing
- IEEE Journal of Selected Topics in Signal Processing
- IEEE Transactions on Signal Processing
- IEEE Transactions on Circuits and Systems for Video Technology
- European Journal of Operational Research
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- SIAM Journal on Matrix Analysis and Applications
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- CVPR、ECCV、ICCV、AAAI、KDD、ACM MM、IJCAI、AAAI
- IEEE Transactions on Geoscience and Remote Sensing
- IEEE Transactions on Cybernetics
- IEEE Transactions on Multimedia
- IEEE Transactions on Cybernetics
- IEEE Transactions on Neural Networks and Learning Systems