

# FENGCHAO XIONG

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## EDUCATION

- Zhejiang University**, Hangzhou, Zhejiang. 2014.9-2019.9  
*Ph.D* in College of Computer Science  
*Supervisor*: Prof. Yuntao Qian.
- Griffith University**, Nathan, Queensland. 2017.11-2018.12  
*Visiting student* supported by China Scholarship Council (CSC).  
*Supervisor*: Dr. Jun Zhou.
- Shandong University**, Jinan, Shandong. 2010.9-2014.6  
*B.E* in School of Software Engineering
- Wuhan University**, Wuhan, Hubei. 2011.9-2012.6  
*Exchange student* in International School of Software.

## WORKING EXPERIENCE

- Nanjing University of Science and Technology**, Nanjing, Jiangsu. 2022.07-  
Associate Professor in School of Computer Science and Engineering
- Nanjing University of Science and Technology**, Nanjing, Jiangsu. 2019.10-2022.06  
Lecturer in School of Computer Science and Engineering
- University of Macau**, Macau, China. 2021.12-2023.11  
Postdoc in State Key Laboratory of Internet of Things for Smart City  
*Supervisor*: Dr. Jiantao Zhou.

## RESEARCH

- Hyperspectral Image Processing: Denoising、Unmixing、Reconstruction
- Hyperspectral Video Analysis: Tracking、Detection
- Remote Sensing Image Analysis: Road Extraction、Object Detection、Change Detection、Segmentation
- Machine Learning: Deep Learning、Matrix/Tensor Decomposition、Dictionary Learning、Low-rank/Sparse Representation

## RESEARCH PROJECTS

- Fengchao Xiong (PI), Tensor based spatial-spectral-temporal appearance modeling for hyperspectral object tracking, National Natural Science Foundation of China, 2021-2023, 24,0000 RMB
- Fengchao Xiong (PI), Model-driven deep learning for hyperspectral imagery denoising, Jiangsu Provincial Natural Science Foundation of China, 2020.07-2023.07, 20,0000 RMB

## HONORS AND AWARDS

- Best Paper Award on Deep Learning for Earth Observation and Remote Sensing@DICTA 2021.** 2021.12
- Second Place of DIGIX Global AI Challenge@Jiangsu Chapter** 2021.09
- Macau Young Scholar** 2021.8
- Second Place of Hyperspectral Object Tracking@WHISPERS** 2021.3
- DICTA Best Student Paper** 2020.12
- Excellent Research Assistant** 2018.11
- Excellent Graduate Student** 2017.9
- Excellent Exchange Student Scholarship** 2012.9

<b>Excellent Student Awards</b>	2012.9
<b>National Aspiration Scholarship</b>	2011.9
<b>Excellent Student Awards</b>	2011.9

## PROFESSIONAL ACTIVITIES

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### Reviewer:

- International Journal of Computer Vision (IJCV)
- IEEE Transactions on Signal Processing (TSP)
- IEEE Transactions on Image Processing (TIP)
- IEEE Transactions on Multimedia (TMM)
- IEEE Transactions on Geoscience and Remote Sensing (TGRS)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE Transactions on Cybernetics (TCYB)
- IEEE Transactions on Instrumentation and Measurement (TIM)
- IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS)
- IEEE Journal of Selected Topics in Signal Processing (JSTSP)
- Pattern Recognition (PR)
- IEEE Geoscience and Remote Sensing Society Letters (GRSL)
- Remote Sensing
- Knowledge Based System
- Neural Processing Letters
- International Journal of Remote Sensing
- IET Computer Vision
- IET Image Processing
- AAAI Conference on Artificial Intelligence, 2022, 2023
- IEEE International Conference on Multimedia and Expo (ICME), 2021, 2022, 2023
- IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2022, 2023
- IEEE International Conference on Image Processing (ICIP), 2022, 2023
- International Conference on Digital Image Computing: Techniques and Applications (DICTA), 2020, 2021, 2022
- IEEE International Geoscience and Remote Sensing Symposium (IGARSS), 2023

**Volunteer:** The 11th IAPR International Conference on Biometrics (ICB 2018, CCF C)

**Publicity Chair:** International Conference on SMART MULTIMEDIA, 2022 (ICSM 2022)

**Area Chair:** IEEE International Conference on Multimedia and Expo, 2023 (ICME 2023, CCF B)

**Organizer:** Hyperspectral Object Tracking Challenge, 2020, 2022

**Guest Editor:** IET Computer Vision (IET CV, CCF C) for Special Issue "Spectral Imaging Powered Computer Vision" Deadline is 31 March 2023.

**Lead Guest Editor:** Remote Sensing for Special Issue "Hyperspectral Object Tracking". Deadline is 15 August 2023.

**Review Editor** of Frontiers in Imaging

## PUBLICATIONS

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1. Yuntao Qian, **Fengchao Xiong**, Shan Zeng, Jun Zhou, Yuan Yan Tang. "Matrix-Vector Nonnegative Tensor Factorization for Blind Unmixing of Hyperspectral Imagery", *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, vol. 55, no. 3, pp. 1776-1792, 2017.

2. **Fengchao Xiong**, Jingzhou Chen, Jun Zhou, Yuntao Qian. "Superpixel-Based Nonnegative Tensor Factorization for Hyperspectral Unmixing", *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2018.
3. **Fengchao Xiong**, Jun Zhou, Yuntao Qian. "Hyperspectral Imagery Denoising via Reweighted Sparse Low-Rank Nonnegative Tensor Factorization", *IEEE International Conference on Image Processing (ICIP)*, 2018.
4. Kun Qian, Jun Zhou, **Fengchao Xiong**, Huixin Zhou, Juan Du. "Object Tracking in Hyperspectral Videos with Convolutional Features and Kernelized Correlation Filter", *International Conference on Smart Multimedia (ICSM)*, 2018.
5. **Fengchao Xiong**, Yuntao Qian, Jun Zhou, Yuan Yan Tang. "Hyperspectral Unmixing via Total Variation Regularized Nonnegative Tensor Factorization", *IEEE Transactions on Geoscience and Remote Sensing*, vol. 57, no. 4, pp. 2341-2357, 2019.
6. **Fengchao Xiong**, Jun Zhou, Yuntao Qian. "Hyperspectral Restoration via  $L_0$  Gradient Regularized Low-Rank Tensor Factorization", *IEEE Transactions on Geoscience and Remote Sensing*, vol. 57, no. 12, pp. 10410-10425, 2019.
7. **Fengchao Xiong**, Jun Zhou, Yuntao Qian, Jocelyn Chanussot. "Dynamic Material-Aware Object Tracking in Hyperspectral Videos", *IEEE Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS)*, 2019.
8. Qipeng Qian, **Fengchao Xiong**, Jun Zhou. "Deep Unfolded Iterative Shrinkage-Thresholding Model for Hyperspectral Unmixing", *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2019.
9. **Fengchao Xiong**, Jun Zhou, Yuntao Qian. "Material Based Object Tracking in Hyperspectral Videos", *IEEE Transactions on Image Processing*, vol. 29, no. 1, pp. 3719-3733, 2020.
10. Yuntao Qian, **Fengchao Xiong**, Qipeng Qian, Jun Zhou. "Spectral Mixture Model Inspired Network Architectures for Hyperspectral Unmixing", *IEEE Transactions on Geoscience and Remote Sensing*, vol. 58, no. 10, pp. 7418-7434, 2020.
11. **Fengchao Xiong**, Kun Qian, Jianfeng Lu, Jun Zhou, Yuntao Qian. "Nonlocal Low-rank Nonnegative Tensor Factorization for Hyperspectral Unmixing", *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2020.
12. Xinhai Ye, **Fengchao Xiong\***, Jianfeng Lu, Haifeng Zhao, Jun Zhou. "M2-Net: A Multi-scale Multi-level Feature Enhanced Network for Object Detection in Optical Remote Sensing Images", *International Conference on Digital Image Computing: Techniques and Applications (DICTA)*, 2020. (Best Student Paper)
13. Zhuanfeng Li, **Fengchao Xiong\***, Jun Zhou, Jing Wang, Jianfeng Lu, Yuntao Qian. "BAE-Net: A Band Attention Aware Ensemble Network for Hyperspectral Object Tracking", *IEEE International Conference on Image Processing (ICIP)*, 2020.
14. **Fengchao Xiong**, Jun Zhou, Jianfeng Lu, Yuntao Qian. "Non-convex Non-separable Sparse Nonnegative Matrix Factorization for Hyperspectral Unmixing", *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS)*, 2020.
15. Xinhai Ye, **Fengchao Xiong\***, Jun Zhou, Jianfeng Lu, Yuntao Qian. " $\mathcal{F}^3$ -Net: Feature Fusion and Filtration Network for Object Detection in Optical Remote Sensing Images", *Remote Sensing*, 2020.
16. Jianxi Wang, Minchao Ye, **Fengchao Xiong**, Yuntao Qian. "Cross-scene hyperspectral feature selection via hybrid whale optimization algorithm with simulated annealing", *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS)*, 2021.
17. **Fengchao Xiong**, Jun Zhou, Minchao Ye, Jianfeng Lu, Yuntao Qian. "NMF-SAE: An interpretable sparse autoencoder for hyperspectral unmixing", *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2021.
18. Zhuanfeng Li, Xinhai Ye, **Fengchao Xiong\***, Jianfeng Lu, Jun Zhou, Yuntao Qian. "Spectral-Spatial-Temporal Attention Network for Hyperspectral Tracking", *IEEE Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS)*, 2021.
19. Guanyiman Fu, **Fengchao Xiong\***, Shuyin Tao, Jianfeng Lu, Jun Zhou, Yuntao Qian,. "Learning a model-

based deep hyperspectral denoiser from a single noisy hyperspectral image”, *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2021.

20. **Fengchao Xiong**, Jun Zhou, Shuyin Tao, Jianfeng Lu, Yuntao Qian. ”SNMF-Net: Learning a Deep Alternating Neural Network for Hyperspectral Unmixing”, *IEEE Transactions on Geoscience and Remote Sensing*, 2021.
21. **Fengchao Xiong**, Jun Zhou, Qinling Zhao, Jianfeng Lu, Yuntao Qian. ”MAC-Net: Model Aided Nonlocal Neural Network for Hyperspectral Imagery Denoising”, *IEEE Transactions on Geoscience and Remote Sensing*, 2021.
22. Minchao Ye, Junbin Chen, **Fengchao Xiong**, Yuntao Qian. ”Learning a deep structural subspace across hyperspectral scenes with cross-domain VAE”, *IEEE Transactions on Geoscience and Remote Sensing*, 2021.
23. Shide Zou, **Fengchao Xiong**, Haonan Luo, Jianfeng Lu, Yuntao Qian. ”AF-Net: All-scale Feature Fusion Network for Road Extraction from Remote Sensing Images”, *International Conference on Digital Image Computing: Techniques and Applications(DICTA)*, 2021.
24. Zhuanfeng Li, **Fengchao Xiong\***, Jianfeng Lu, Jun Zhou, Yuntao Qian. ”Material-Guided Siamese Fusion Network for Hyperspectral Object Tracking”, *International Conference on Acoustics, Speech, and Signal Processing (ICASSP, CCF B)*, 2022.
25. **Fengchao Xiong\***, Jun Zhou, Minchao Ye, Jianfeng Lu, Yuntao Qian. ”Multitask Sparse Neural Network for Hyperspectral Image Denoising”, *International Conference on Acoustics, Speech, and Signal Processing (ICASSP, CCF B)*, 2022.
26. Xiangyu Wu, Jianfeng Lu, Zhuanfeng Li, **Fengchao Xiong**. ”Ques-to-Visual Guided Visual Question Answering”, *IEEE International Conference on Image Processing (ICIP)*, 2022.
27. **Fengchao Xiong**, Minchao Ye, Jun Zhou, Yuntao Qian. ”Spatial-Spectral Convolutional Sparse Neural Network for Hyperspectral Image Denoising”, *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2022.
28. Zhihao Meng, Minchao Ye, Futian Yao, **Fengchao Xiong**, Yuntao Qian. ”Cross-scene Hyperspectral Image Classification Based on Cycle-Consistent Adversarial Networks”, *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2022.
29. Chenglong Wang, Minchao Ye, Ling Lei, **Fengchao Xiong**, Yuntao Qian. ”Cross-domain Attention Network for Hyperspectral Image Classification”, *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2022.
30. **Fengchao Xiong**, Jun Zhou, Shuyin Tao, Jianfeng Lu, Jiantao Zhou, Yuntao Qian. ”SMDS-Net: Model Guided Spectral-Spatial Network for Hyperspectral Image Denoising”, *IEEE Transactions on Image Processing*, 2022.
31. Guanyiman Fu, **Fengchao Xiong\***, Jianfeng Lu, Jun Zhou, Yuntao Qian. ”Hyperspectral Image Denoising via Nonlocal Spatial-Spectral Recurrent Neural Network”, *IEEE Transactions on Geoscience and Remote Sensing*, 2022.
32. Hui Xie, Jun Lu, JingHan, Yi Zhang, **Fengchao Xiong**, Zhuang Zhao. ”Fourier space coded hyperspectral imaging system”, *Optics and Lasers in Engineering*, 2022.
33. **Fengchao Xiong**, Tianhan Li, Jun Zhou, Jiantao Zhou, Jianfeng Lu, Yuntao Qian. ”Mask-Guided Local-Global Attentive Network for Change Detection in Remote Sensing Images”, *IEEE Transactions on Geoscience and Remote Sensing (Under Review)*, 2022.
34. **Fengchao Xiong**, Jun Zhou, Jiantao Zhou, Jianfeng Lu, Yuntao Qian. ”Deep Parameterized Neural Networks for Hyperspectral Image Denoising”, *IEEE Transactions on Circuits and Systems for Video Technology (Major Revision)*, 2022.
35. **Fengchao Xiong**, Jiantao Zhou, Jun Zhou, Jianfeng Lu, Yuntao Qian. ”Multitask Sparse Representation Inspired Network for Hyperspectral Image Denoising”, *IEEE Transactions on Multimedia (Major Revision)*, 2022.
36. Zhuanfeng Li, **Fengchao Xiong\***, Jun Zhou, Jianfeng Lu, Yuntao Qian. ”Learning a Deep Ensemble Network for Hyperspectral Object Tracking”, *IEEE Transactions on Image Processing*, 2023.
37. Zhuang Zhao, Jiutao Mu, Hui Xie, **Fengchao Xiong**, Jun Lu, JingHan. ”Rapid coded aperture spectrometer

based on energy concentration characteristic”, *Signal Processing*, 2023.

38. Shou Feng, Rui Feng, Yiming Yan, Chunhui Zhao, **Fengchao Xiong**, Lifu Zhang. ”An Attention-based Multiscale Spectral-Spatial Network for Hyperspectral Target Detection”, *IEEE Geoscience and Remote Sensing Letters (Major Revision)*, 2022.
39. Minchao Ye, Chenglong Wang, Zhihao Meng, **Fengchao Xiong**, Yuntao Qian. ”Domain-invariant attention network for transfer learning between cross-scene hyperspectral images”, *IET Computer Vision (Under Review)*, 2022.
40. Hui Xie, Jing Han, Yi Zhang, **Fengchao Xiong**, Zhuang Zhao. ”Dual camera snapshot high-resolution-hyperspectral imaging system with parallel joint optimization via physics-informed learning”, *Optics Express (Under Review)*, 2023.
41. **Fengchao Xiong**, Jun Zhou, Zhuang Zhao, Yuntao Qian. ”Iterative Refinement Network for Hyperspectral Image Denoising”, *IEEE International Conference on Multimedia & Expo (Accepted)*, 2023.
42. Tianhan Li, **Fengchao Xiong**, Wenbin Zheng, Zhuanfeng Li, Jun Zhou, Yuntao Qian. ”Wavelet Siamese Network for Change Detection in Remote Sensing Images”, *International Geoscience and Remote Sensing Symposium (Under Review)*, 2023.
43. **Fengchao Xiong**, Zhongyi Gu, Wenbin Zheng, Tianhan Li, Jun Zhou. ”Multi-task Attentional U-Net for Hyperspectral Image Denoising”, *International Geoscience and Remote Sensing Symposium (Under Review)*, 2023.
44. Junbin Chen, Minchao Ye, **Fengchao Xiong**, Yuntao Qian. ”Adaptive graph modeling with self-training for heterogeneous cross-scene hyperspectral image classification ”, *IEEE Transactions on Geoscience and Remote Sensing (在审)*, 2023.

\* indicates corresponding author.

## REFEREES

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- Yuntao Qian (ytqian@zju.edu.cn)
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