

# Fengchao Xiong

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## Education

- **Ph.D., Computer Science** **Hangzhou, China**  
*College of Computer Science, Zhejiang University*  
**Supervisor:** Prof. Yuntao Qian  
*2014.9-2019.9*
- **Visiting student, Computer Science** **Brisbane, Australia**  
*School of Information and Communication Technology, Griffith University*  
**Supervisor:** A/Prof. Jun Zhou  
*2017.11-2018.12*
- **B.E., Software Engineering** **Jinan, China**  
*School of Software, Shandong University*  
*2010.9-2014.6*
- **Visiting student, Software Engineering** **Wuhan, China**  
*International School of Software, Wuhan University*  
*2011.9-2012.6*

## Working Experience

**Nanjing University of Science and Technology**, Nanjing, China. 2019.10-  
Lecturer (Assistant Professor) in School of Computer Science and Engineering

## Research

- Low-rank and sparse matrix/tensor representation
- Deep learning
- Hyperspectral imaging
- Object tracking
- Multidimensional signal processing

## Funded 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

## Publications

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 Reweighed 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. **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.
9. Qipeng Qian, **Fengchao Xiong**, Jun Zhou. "Deep Unfolded Iterative Shrinkage-Thresholding Model for Hyperspectral Unmixing", *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2019.
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. (Accepted)
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. (Accepted)
19. Yiman Fuguan, **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. (Accepted)
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.(Accepted)

21. **Fengchao Xiong**, Jun Zhou, Jianfeng Lu, Yuntao Qian. "SMDS-Net: Model Guided Spectral-Spatial Network for Hyperspectral Image Denoising", *arXiv preprint*, 2021. (Under Review)
22. Zhuanfeng Li, **Fengchao Xiong\***, Jun Zhou, Jianfeng Lu, Yuntao Qian. "Learning a Deep Ensemble Network for Hyperspectral Object Tracking", *IEEE Transactions on Image Processing*, 2021.(To be submitted)

\* indicates corresponding author.

## Professional Activities

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### Reviewer:

- IEEE Transactions on Image Processing(TIP)
- IEEE Transactions on Multimedia (TMM)
- IEEE Transactions on Geoscience and Remote Sensing (TGRS)
- 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
- Geo-spatial Information Science
- Remote Sensing
- Sensors
- Knowledge Based System
- Neural Processing Letters
- International Journal of Remote Sensing
- IET Computer Vision
- IET Image Processing
- IEEE International Conference on Multimedia and Expo (ICME), 2021
- International Conference on Digital Image Computing: Techniques and Applications(DICTA), 2020, 2021

**Volunteer:** The 11th IAPR International Conference on Biometrics (ICB 2018) 2018.2

**Organizer:** Hyperspectral Object Tracking Challenge@WHISPERS 2021

**Publicity Chair:** International Conference on SMART MULTIMEDIA 2021

## Honors and Awards

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<b>Co-recipient of Best Student Paper of DICTA 2020</b>	2020.11
<b>Excellent Research Assistant</b>	2018.11
<b>Excellent Graduate Student</b>	2017.9
<b>Excellent Exchange Student Scholarship</b>	2012.9
<b>Excellent Student Awards</b>	2012.9
<b>National Aspiration Scholarship</b>	2011.9
<b>Excellent Student Awards</b>	2011.9

## Referees

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- Yuntao Qian (ytqian@zju.edu.cn)
- Jun Zhou (jun.zhou@griffith.edu.au)