

# FENGCHAO XIONG

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## EDUCATION

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**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

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**Nanjing University of Science and Technology**, Nanjing, Jiangsu. 2019.10-

Lecturer in School of Computer Science and Engineering

## RESEARCH

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

## RESEARCH PROJECTS

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- 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

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**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

**Excellent Student Awards** 2012.9

**National Aspiration Scholarship** 2011.9

**Excellent Student Awards** 2011.9

## 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
- AAAI Conference on Artificial Intelligence 2021

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

**Publicity Chair:** International Conference on SMART MULTIMEDIA, 2021 (ICSM 2021)

**Organizer:** Hyperspectral Object Tracking Challenge, 2020 (HOT 2020)

## 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 Ar-

chitectures 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. 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.
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* (Accepted), 2021.
21. **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 (Under Review)* , 2021.
22. **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 (Accepted)*, 2021.
23. 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 (Major Revision)*, 2021.
24. Zhuangeng Li, **Fengchao Xiong**, Jun Zhou, Jianfeng Lu, Yuntao Qian. ”Learning a Deep Ensemble Network for Hyperspectral Object Tracking”, *IEEE Transactions on Image Processing (Under Review)*, 2021.
25. 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.

## REFEREES

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