

# 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*: Prof. Jun Zhou.
- Shandong University**, Jinan, Shandong. 2010.9-2014.6  
*B.E* in School of Software
- Wuhan University**, Wuhan, Hubei. 2011.9-2012.6  
*Exchange Student* in International School of Software.

## WORKING EXPERIENCE

- Ministry of Industry and Information Technology**, Beijing 2024.01-  
Secondment in High and New Technology Division
- 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*: Prof. Jiantao Zhou.

## RESEARCH

- Hyperspectral Computer Vision: Denoising; Reconstruction; Tracking; Detection
- Remote Sensing Image Analysis: Road Extraction; Object Detection; Change Detection; Segmentation
- Machine Learning: Deep Learning; Matrix/Tensor Decomposition; Foundation Models

## PROJECTS

- Fengchao Xiong (PI), Physical-information Constrained Neural Network for Hyperspectral Image Denoising, Natural Science Foundation of China, 2024.01 – 2027.12, 49,0000 RMB
- Fengchao Xiong (PI), Material-information Guided Spatial-Spectral-Temporal Tracking in Hyperspectral Videos, Fundamental Research Funds for the Central Universities, 2023.08-2026.08, 20,0000 RMB
- Fengchao Xiong (PI), Deep Learning-based Natural Element Change Detection, State Key Laboratory of Geo-Information Engineering, 2023.07 – 2024.07, 3,0000 RMB
- Fengchao Xiong (PI), Tensor based spatial-spectral-temporal appearance modeling for hyperspectral object tracking, National Natural Science Foundation of China, 2021.01-2023.12, 240,000 RMB
- Fengchao Xiong (PI), Model-driven deep learning for hyperspectral imagery denoising, Jiangsu Provincial Natural Science Foundation of China, 2020.07-2023.07, 200,000 RMB

## HONORS AND AWARDS

- Third Prize of the 2023 Ningxia Autonomous Region Science and Technology Progress Award** 2024.7
- DIGIX 5th Global Campus Algorithmic Elite Artificial Intelligence Competition Provincial Outstanding Instructor (Undergraduate Group)** 2023.12

<b>National Second Prize in the First National Artificial Intelligence Application Scenario Innovation Challenge 2023 (Instructor)</b>	2023.12
<b>Outstanding Supervisor at the 2023 Graduate Student Academic Forum of the "Journal of Remote Sensing,"</b>	2023.11
<b>First Prize in the 5th China Graduate Student Artificial Intelligence Innovation Competition</b>	2023.09
<b>Best Reviewer of IEEE TGRS 2022</b>	2023.04
<b>Best Paper Award on Deep Learning for Earth Observation and Remote Sensing@DICTA 2021</b>	2021.12
<b>Second Place of DIGIX Global AI Challenge@Jiangsu Chapter</b>	2021.09
<b>Macau Young Scholar</b>	2021.8
<b>Second Place of Hyperspectral Object Tracking@WHISPERS</b>	2021.3
<b>DICTA Best Student Paper</b>	2020.12
<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

## PROFESSIONAL ACTIVITIES

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### Reviewer:

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- International Journal of Computer Vision (IJCV)
- IEEE Transactions on Signal Processing (TSP)
- IEEE Transactions on Image Processing (TIP)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- IEEE Transactions on Multimedia (TMM)
- IEEE Transactions on Geoscience and Remote Sensing (TGRS)
- ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM)
- IEEE Transactions on Cybernetics (TCYB)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- 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, 2024

- IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2022, 2023, 2024
- IEEE International Conference on Image Processing (ICIP), 2022, 2023, 2024
- International Conference on Digital Image Computing: Techniques and Applications(DICTA), 2020, 2021, 2022
- IEEE International Geoscience and Remote Sensing Symposium (IGARSS), 2023, 2024

**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

**Topical Associate Editor:** IEEE Transactions on Geoscience and Remote Sensing

**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

1. Jin Ye, **Fengchao Xiong\***, Jun Zhou, Yuntao Qian. "Iterative Low-rank Network for Hyperspectral Image Restoration", *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, 2024.
2. Guanyiman Fu, **Fengchao Xiong\***, Jianfeng Lu, Jun Zhou, Yuntao Qian. "SSUMamba: Spatial-Spectral Selective State Space Model for Hyperspectral Image Denoising", *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, 2024.
3. **Fengchao Xiong**, Tianhan Li, Yi Yang, Jianfeng Lu, Jun Zhou, Yuntao Qian. "Wavelet Siamese Network with Semi-supervised Domain Adaptation for Change Detection in Remote Sensing Images", *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, 2024.
4. Guanyiman Fu, **Fengchao Xiong\***, Jianfeng Lu, Jun Zhou, Jiantao Zhou, Yuntao Qian. "Hyperspectral Image Denoising via Spatial-Spectral Recurrent Transformer", *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, 2024.
5. Zhuanfeng Li, **Fengchao Xiong\***, Jun Zhou, Jianfeng Lu, Zhuang Zhao, Yuntao Qian. "Material-Guided Multi-View Fusion Network for Hyperspectral Object Tracking", *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, 2024.
6. **Fengchao Xiong**, Tianhan Li, Jingzhou Chen, Jun Zhou, Yuntao Qian. "Mask-Guided Local-Global Attentive Network for Change Detection in Remote Sensing Images", *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS)*, *ESI highly cited paper*, 2024.
7. Di Hu, Xia Yuan, Huiying Xi, Jie Li, Zhenbo Song, **Fengchao Xiong**, Kai Zhang, Chunxia Zhao. "Road Structure Based Ground-to-Aerial Pose Estimation", *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS)*, 2024.
8. Minchao Ye, Junbin Chen, **Fengchao Xiong\***, Yuntao Qian. "Adaptive graph modeling with self-training for heterogeneous cross-scene hyperspectral image classification ", *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, 2024.
9. Yijun Zhang, **Fengchao Xiong**, Jianfeng Lu, Minchao Ye, Jun Zhou, Yuntao Qian. "Semantic-Aware Alignment Network for Cross-resolution Change Detection" *IEEE International Symposium on Geoscience and Remote Sensing (IGARSS)*, 2024.
10. Shou Feng, Rui Feng, **Fengchao Xiong**, Chunhui Zhao, Wei Li, Ran Tao. "A Transformer-Based Cross-Domain Few-Shot Learning Method for Hyperspectral Target Detection", *IEEE Transactions on Geoscience and Remote Sensing (TGRS, Major Revision)*, 2024.
11. Zhuang Zhao\*, Yan Zhang, Jing Han, **Fengchao Xiong**, Jun Lu, Long Zhang. "Physics-guided Super-resolution Compressed Encoding Spectral Imaging System ", *Optics and Lasers in Engineering (OLEN, Under Review)*, 2024.
12. Minchao Ye, Jiawei Ling, **Fengchao Xiong**, Yuntao Qian. "Discriminative Vision Transformer for Heterogeneous Cross-Domain Hyperspectral Image Classification", *IEEE Transactions on Geoscience and Remote Sensing (TGRS, 大修)*, 2024.

13. Zhuanfeng Li, **Fengchao Xiong\***, Jianfeng Lu, Jing Wang, Diqi Chen, Jun Zhou, Yuntao Qian. "Towards Universal Representation Learning for Multi-domain Hyperspectral Object Tracking", *Pattern Recognition (PR, Under Review)*, 2024.
14. Jingzhou Chen, **Fengchao Xiong\***, Yuntao Qian, Liang Xiao. "Hierarchical Multi-Granularity Ship Classification Using Hierarchical Contrastive Learning with Learnable Class Quires", *IEEE Transactions on Geoscience and Remote Sensing (TGRS, Under Review)*, 2024.
15. Jun Zhou, **Fengchao Xiong**, Lei Tong, Naoto Yokoya, Pedram Ghamisi. "Guest Editorial: Spectral Imaging Powered Computer Vision", *IET Computer Vision*, 2023.
16. **Fengchao Xiong**, Jun Zhou, Jiantao Zhou, Jianfeng Lu, Yuntao Qian. "Deep Parameterized Neural Networks for Hyperspectral Image Denoising", *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, 2023.
17. 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*, 2023.
18. **Fengchao Xiong**, Jiantao Zhou, Jun Zhou, Jianfeng Lu, Yuntao Qian. "Multitask Sparse Representation Inspired Network for Hyperspectral Image Denoising", *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, 2023.
19. Zhuanfeng Li, **Fengchao Xiong\***, Jun Zhou, Jianfeng Lu, Yuntao Qian. "Learning a Deep Ensemble Network with Band Importance for Hyperspectral Object Tracking", *IEEE Transactions on Image Processing (TIP)*, 2023.
20. Ziqi Yu, Zhuang Zhao, Haocun Qi, Jing Han, Yi Zhang, Lianfa Bai, **Fengchao Xiong**. "Redundant Compressed Single-Pixel Hyperspectral Imaging System", *Optics Communications*, 2023.
21. Zhuang Zhao, Jiutao Mu, Hui Xie, **Fengchao Xiong**, Jun Lu, Jing Han. "Rapid coded aperture spectrometer based on energy concentration characteristic", *Signal Processing*, 2023.
22. 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*, 2023.
23. 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 (GRSL)*, 2023.
24. **Fengchao Xiong**, Jun Zhou, Zhuang Zhao, Yuntao Qian. "Iterative Refinement Network for Hyperspectral Image Denoising", *IEEE International Conference on Multimedia & Expo (ICME)*, 2023.
25. 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 (IGARSS)*, 2023.
26. **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 (IGARSS)*, 2023.
27. Shou Feng, Rui Feng, Fengchao Xiong, Chunhui Zhao, Wei Li, Ran Tao. "A Transformer-Based Cross-Domain Few-Shot Learning Method for Hyperspectral Target Detection", *IEEE Transactions on Geoscience and Remote Sensing (TGRS, Under Review)*, 2023.
28. Guanyiman Fu, **Fengchao Xiong**, Jianfeng Lu, Jun Zhou, Jiantao Zhou, Yuntao Qian. "Hyperspectral Image Denoising via Spatial-Spectral Recurrent Transformer", *IEEE Transactions on Geoscience and Remote Sensing (TGRS, Under Review)*, 2023.
29. Zhuanfeng Li, **Fengchao Xiong**, Jun Zhou, Jianfeng Lu, Zhuang Zhao, Yuntao Qian. "Material-Guided Multi-View Fusion Network for Hyperspectral Object Tracking", *IEEE Transactions on Geoscience and Remote Sensing (TGRS, Major Revision)*, 2023.
30. **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 (TGRS)*, 2022.
31. **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 (TGRS)*, 2022.
32. 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*

(TGRS), 2022.

33. **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 (TIP)*, 2022.
34. 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 (TGRS)*, 2022.
35. Hui Xie, Jun Lu, JingHan, Yi Zhang, **Fengchao Xiong**, Zhuang Zhao. "Fourier space coded hyperspectral imaging system", *Optics and Lasers in Engineering (OLEN)*, 2022.
36. 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)*, 2022.
37. **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)*, 2022.
38. Xiangyu Wu, Jianfeng Lu, Zhuanfeng Li, **Fengchao Xiong**. "Ques-to-Visual Guided Visual Question Answering", *IEEE International Conference on Image Processing (ICIP)*, 2022.
39. **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.
40. 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.
41. 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.
42. 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.
43. **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.
44. 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.
45. 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.
46. 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.
47. **Fengchao Xiong**, Jun Zhou, Yuntao Qian. "Material Based Object Tracking in Hyperspectral Videos", *IEEE Transactions on Image Processing (TIP)*, vol. 29, no. 1, pp. 3719-3733, 2020.
48. Yuntao Qian, **Fengchao Xiong**, Qipeng Qian, Jun Zhou. "Spectral Mixture Model Inspired Network Architectures for Hyperspectral Unmixing", *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, vol. 58, no. 10, pp. 7418-7434, 2020.
49. **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.
50. 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)

51. 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.
52. **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.
53. 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.
54. **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 (TGRS)*, vol. 57, no. 4, pp. 2341-2357, 2019.
55. **Fengchao Xiong**, Jun Zhou, Yuntao Qian. "Hyperspectral Restoration via  $L_0$  Gradient Regularized Low-Rank Tensor Factorization", *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, vol. 57, no. 12, pp. 10410-10425, 2019.
56. **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.
57. Qipeng Qian, **Fengchao Xiong**, Jun Zhou. "Deep Unfolded Iterative Shrinkage-Thresholding Model for Hyperspectral Unmixing", *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2019.
58. **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.
59. **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.
60. 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.
61. 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.

\* indicates corresponding author.

## REFEREES

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