

Chao Huang is currently an Assistant Professor with the School of Cyber Science and Technology, Sun Yat-sen University. He received the Ph.D. degree in computer science and technology from Harbin Institute of Technology, Shenzhen, China, in 2022. From 2019 to 2022, he was a visiting scholar with Peng Cheng Laboratory. His research interests include anomaly detection, multimedia analysis, object detection, image/video compression, and deep learning. Dr. Huang received the Distinguished Paper Award of AAAI 2023, and his dissertation was nominated for Harbin Institute of Technology's Outstanding Dissertation Award. So far, he has published over twenty technical papers at prestigious international journals and conferences. He serves as an Associated Editor for the Pattern Recognition, and also serves/served as the reviewer or PC member for several top journals and conferences, including IEEE TPAMI, TIP, TIFS, TNNLS, TMM, TCSVT, TII, CVPR, ICCV, ECCV, ICML, NeurIPs, ICLR, AAAI, ACM Multimedia, IJCAI and so.

Education and Position

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- Ph.D., Harbin Institute of Technology (Top 9 in China) 2019.09-2022.11
Major in Computer Science and Technology (Computer Vision)
 - Visiting Student, Peng Cheng Laboratory 2019.10-2022.10
Artificial Intelligence Center (Intelligent Transportation)
 - Master, Ningbo University 2016.09-2019.06
Major in Communication Engineering (Image/Video Coding)
 - Bachelor, Ningbo University 2012.09-2016.06
Major in Communication Engineering

Research Interests

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- Computer Vision, Medical Image Analysis, Machine Learning
Image/video anomaly detection, medical image segmentation, multimodal learning, unsupervised/weakly-supervised representation learning

Honors & Awards

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- AAAI 2023 Distinguished Paper Award 2023.02
 - Excellent Doctoral Dissertation of HIT 2022.11
 - National scholarship for Ph.D. students 2022.09
 - Excellent students of Harbin Institute of Technology 2021.12
 - Second Prize of National Mathematical Contest in Modeling 2016.12

Professional Activities

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- **Associate Editor**
Pattern Recognition Journal
International Journal of Image and Graphics
 - **Reviewer/Program Committee Member**
CVPR/ICCV/ECCV/ICML/NeurIPS/ICLR/AAAI/IJCAI/ACM MM
TPAMI/IJCV/TIP/TNNLS/TCYB/TMM/TCSVT/PR/NN
 - Talk
ACM MM 2022 oral presentation, IJCAI 2024 oral presentation
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Selected Publications

Journal Papers:

- [1] **Chao Huang**, Zongju Peng, Yong Xu, Fen Chen, Qiuping Jiang, Yun Zhang, Gangyi Jiang, Yo-Sung Ho, Online Learning-based Multi-Stage Complexity Control for Live Video Coding, *IEEE Transactions on Image Processing*, 2021, 30: 641-656. (JCR Q1, IF:10.8)
- [2] Yabo Liu, Jinghua Wang, **Chao Huang**(*Corresponding Author*), Yiling Wu, Yong Xu, Xiaochun Cao, MLFA: Towards Realistic Test Time Adaptive Object Detection by Multi-level Feature Alignment, *IEEE Transactions on Image Processing*, 2024.
- [3] **Chao Huang**, Jie Wen, Yong Xu*, Qiuping Jiang, Jian Yang, Yaowei Wang, David Zhang, Self-Supervised Attentive Generative Adversarial Networks for Video Anomaly Detection, *IEEE Transactions on Neural Networks and Learning Systems*, 2022. DOI: 10.1109/TNNLS.2022.3159538. (JCR Q1, IF: 10.2)
- [4] **Chao Huang**, Zehua Yang, Jie Wen, Yong Xu*, Qiuping Jiang, Jian Yang, Yaowei Wang, Self-Supervision-Augmented Deep Autoencoder for Unsupervised Visual Anomaly Detection, *IEEE Transactions on Cybernetics*, 2022, 52(12): 13834-13847. (JCR Q1, IF: 9.4)
- [5] **Chao Huang**, Chengliang Liu, Jie Wen, Yong Xu*, Qiuping Jiang, Yaowei Wang, Weakly Supervised Video Anomaly Detection via Self-Guided Temporal Discriminative Transformer, *IEEE Transactions on Cybernetics*, 2024, 54 (5): 3197-3210. (JCR Q1, IF: 9.4)
- [6] **Chao Huang**, Zhihao Wu, Jie Wen, Yong Xu*, Qiuping Jiang, Yaowei Wang, Abnormal Event Detection Using Deep Contrastive Learning for Intelligent Video Surveillance System, *IEEE Transactions on Industrial Informatics*, 2022, 18(8): 5171-5179. (JCR Q1, IF: 11.7)
- [7] Qiuping Jiang, Yudong Mao, Runmin Cong, Wenqi Ren, **Chao Huang** (*Corresponding Author*), Unsupervised Decomposition and Correction Network for Low-light Image Enhancement, *IEEE Transactions on Intelligent Transportation Systems*, 2022. DOI: 10.1109/TITS.2022.3165176. (JCR Q1, IF: 9.551)
- [8] Lian Wu, **Chao Huang**(*Corresponding Author*), Lunke Fei, Shuping Zhao, Yong Xu, Video-Based Fall Detection Using Human Pose and Constrained Generative Adversarial Network[J]. *IEEE Transactions on Circuits and Systems for Video Technology*, 2024, 34 (4): 2179-2194. (JCR Q1, IF: 8.3)
- [9] **Chao Huang**, Yushu Shi, Bob Zhang, Ke Lyu, Uncertainty-Aware Prototypical Learning for Anomalous Object Detection in Medical Images[J]. *Neural Networks*, 2024: 175,1-10. (JCR Q1, IF: 6.0)
- [10] Lian Wu, **Chao Huang**(*Corresponding Author*), Shuping Zhao, Lunke Fei, Jinkai Li, Yong Xu, Min Zhang, Robust Fall Detection in Video Surveillance based on Weakly Supervised Learning[J]. *Neural Networks*, 2023: 163, 286-297. (JCR Q1, IF: 6.0)
- [11] Xiaoling Luo, Qihao Xu, Zhihua Wang, **Chao Huang**(*Corresponding Author*), Chengliang Liu, Xiaopeng Jin, Jianguo Zhang, A Lesion-Fusion Neural Network for Multi-View Diabetic Retinopathy Grading[J]. *IEEE journal of biomedical and health informatics*, 2024, DOI: 10.1109/JBHI.2024.3384251. (JCR Q1, IF: 6.7)
- [12] Dasheng Zhang, **Chao Huang**(*Co-First Author*), Chengliang Liu and Yong Xu*,

Weakly Supervised Video Anomaly Detection via Transformer-Enabled Temporal Relation Learning, *IEEE Signal Processing Letters*, vol.29, pp.1197-1201, 2022. (JCR Q2, IF:3.20)

[13] Chengliang Liu, Zhihao Wu, Jie Wen, Yong Xu, and Chao Huang, Localized Sparse Incomplete Multi-view Clustering, *IEEE Transactions on Multimedia*, 2022: 25, 5539-5551. (JCR Q1, IF: 8.4)

[14] Chengliang Liu, Jie Wen, Zhihao Wu, Xiaoling Luo, Chao Huang, Yong Xu, Information Recovery-Driven Deep Incomplete Multiview Clustering Network[J]. *IEEE Transactions on Neural Networks and Learning Systems*, 2023. DOI: 10.1109/TNNLS.2023.3286918. (JCR Q1, IF: 10.2)

Conference Papers:

[1] Chao Huang, Yabo Liu, Zheng Zhang, Chengliang Liu, Jie Wen, Yong Xu*, Yaowei Wang, Hierarchical Graph Embedded Pose Regularity Learning via Spatio-Temporal Transformer for Abnormal Behavior Detection, *ACM Multimedia*, 2022: 307-315. (CCF A, Oral Presentation)

[2] Chao Huang, Chengliang Liu, Zheng Zhang, Zhihao Wu, Jie Wen, Qiuping Jiang, Yong Xu*, Pixel-Level Anomaly Detection via Uncertainty-Aware Prototypical Transformer, *ACM Multimedia*, 2022: 521-530. (CCF A)

[3] Chao Huang, Jie Wen, Chengliang Liu, Yabo Liu, Long Short-Term Dynamic Prototype Alignment Learning for Video Anomaly Detection[C]. the 33rd International Joint Conference on Artificial Intelligence (IJCAI), 2024. (CCF A, Oral)

[4] Chao Huang, Weichao Cai, Qiuping Jiang, Zhihua Wang, Multimodal Representation Distribution Learning for Medical Image Segmentation[C]. the 33rd International Joint Conference on Artificial Intelligence (IJCAI), 2024. (CCF A, Oral)

[5] Chao Huang, Zongju Peng, Fen Chen, Qiuping Jiang, Xin Cui and Gangyi Jiang, Encoding Complexity Control for Live Video Applications: An Interpretable Machine Learning Approach, *ICME*, 2019, 1456-1461, 2019.

[6] Ziqi Wang, Wei Wang, Chao Huang (Corresponding Author), Jie Wen, Cong Wang, Batch Singular Value Polarization and Weighted Semantic Augmentation for Universal Domain Adaptation [C]. Forty-first International Conference on Machine Learning (ICML), 2024.

[7] Chengliang Liu, Gehui Xu, Jie Wen, Yabo Liu, Chao Huang, Yong Xu, Partial Multi-View Multi-Label Classification via Semantic Invariance Learning and Prototype Modeling[C]. Forty-first International Conference on Machine Learning (ICML), 2024.

[8] Jie Wen, Shijie Deng, Waikeng Wong, Chao Huang, Lunke Fei, Yong Xu, Diffusion-based Missing-view Generation With the Application on Incomplete Multi-view Clustering[C]. Forty-first International Conference on Machine Learning (ICML), 2024.

[9] Chengliang Liu, Jie Wen, Yabo Liu, Chao Huang, Zhihao Wu, Xiaoling Luo, Yong Xu, Masked Two-channel Decoupling Framework for Incomplete Multi-view Weak Multi-label Learning[C]. International Conference on Advance Neural Information Processing Systems (NeurIPS), 2023

[10] Yabo Liu, Chao Huang, Jinghua Wang, Yong Xu, Yaowei Wang, CIGAR: Cross-Modality Graph Reasoning for Domain Adaptive Object Detection[C]. IEEE/CVF

- Conference on Computer Vision and Pattern Recognition (CVPR), 2023, 23776-23786.
- [11] Jie Wen, Chengliang Liu, Gehui Xu, Zhihao Wu, **Chao Huang**, Lunke Fei, Yong Xu, Highly Confident Local Structure Based Consensus Graph Learning for Incomplete Multi-view Clustering, **CVPR**, 2023, 15712-15721.
- [12] Chengliang Liu, Jie Wen, Xiaoling Luo, **Chao Huang**, Zhihao Wu, and Yong Xu, DICNet: Deep Instance-Level Contrastive Network for Double Incomplete Multi-View Multi-Label Classification, **AAAI**, 2023: 37 (7), 8807-8815. (**CCF A, Distinguished Paper Award**)
- [13] QiHao Xu, Xiaoling Luo, **Chao Huang**, Chengliang Liu, Jie Wen, Jialei Wang, Yong Xu, HACDR-Net: Heterogeneous-Aware Convolutional Network for Diabetic Retinopathy Multi-Lesion Segmentation[C]. AAAI Conference on Artificial Intelligence (AAAI), 2024: 38 (6), 6342-6350. (Oral)
- [14] Chengliang Liu, Jinlong Jia, Jie Wen, Yabo Liu, Xiaoling Luo, **Chao Huang**, Yong Xu, Attention-Induced Embedding Imputation for Incomplete Multi-View Partial Multi-Label Classification[C]. AAAI, 2024: 38 (6), 6342-6350. (Oral)
- [15] Wei Wang, Hanyang Li, **Chao Huang**, Yang Cao, Cong Wang, Xiaochun Cao, Optimal Graph Learning and Nuclear Norm Maximization for Deep Cross-Domain Robust Label Propagation[C]. International Joint Conference on Artificial Intelligence (IJCAI), 2024. (Oral)
- [16] Jie Wen, Gehui Xu, Chengliang Liu, **Chao Huang**, Yong Xu, Localized and Balanced Efficient Incomplete Multi-view Clustering[C]. ACM MM, 2023.
- [17] Wu Chen, Hehe Fan, Qiuping Jiang, **Chao Huang**, Yi Yang, Progressive Point Cloud Denoising with Cross-Stage Cross-Coder Adaptive Edge Graph Convolution Network[C]. ACM MM, 2024.
- [18] Zhihao Wu, Chengliang Liu, **Chao Huang**, Jie Wen, Yong Xu, Deep Object Detection with Example Attribute Based Prediction Modulation, **ICASSP**, 2022.