Tao Wang, Ph.D.

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Education

Nanjing University — **Nanjing, China**
- Ph.D. in Computer Science and Technology — Sep, 2021 – Jul, 2025

Wenzhou University — **Wenzhou, China**
- M.E. in Computer Science and Technology — Sep, 2018 – Jul, 2021

Hainan Normal University — **Haikou, China**
- B.S. in Information and Computing Science — Sep, 2014 – Jul, 2018

Research Interests

Computer vision, Machine learning, Image/video enhancement, Adverse weather restoration, AIGC

Publications

(* indicates corresponding author)

1. **T. Wang**, P. Xia, B. Li, P. Jiang, Z. Kong, K. Zhang, T. Lu, W. Luo, MOERL: When Mixture-of-Experts Meet Reinforcement Learning for Adverse Weather Image Restoration, *Proc. of International Conference on Computer Vision (**ICCV**)*, 2025. (**Top Conference**)
2. **T. Wang**, K. Zhang, Z. Shao, W. Luo, B. Stenger, T. Lu, TK. Kim, W. Liu, H. Li, GridFormer: Residual Dense Transformer with Grid Structure for Image Restoration in Adverse Weather Conditions, *International Journal of Computer Vision (**IJCV**)*, 2024. (**Top Journal**)
3. **T. Wang**, K. Zhang, T. Shen, W. Luo, B. Stenger, T. Lu, Ultra-High-Definition Low-Light Image Enhancement: A Benchmark and Transformer-Based Method, *Proc. of the Association for the Advancement of Artificial Intelligence (**AAAI**)*, 2023. (**Oral Presentation**)
4. **T. Wang**, K. Zhang, Z. Shao, W. Luo, B. Stenger, TK. Kim, T. Lu, W. Liu, H. Li, LLDiffusion: Learning Degradation Representations in Diffusion Models for Low-Light Image Enhancement, *Pattern Recognition (PR)*, 2025.
5. **T. Wang**, G. Tao, W. Lu, K. Zhang, W. Luo, X. Zhang, T. Lu, Restoring Vision in Hazy Weather with Hierarchical Contrastive Learning, *Pattern Recognition (PR)*, 2023.
6. **T. Wang**, X. Zhang, R. Jiang, L. Zhao, H. Chen, W. Luo, Video Deblurring via Spatiotemporal Pyramid Network and Adversarial Gradient Prior, *Computer Vision and Image Understanding (CVIU)*, 2021.
7. X. Zhang, **T. Wang***, W. Luo, P. Huang, Multi-level Fusion and Attention-guided CNN for Image Dehazing, *IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, 2021.
8. W. Zhu, Y. Liu, Y. He, T. Liao, K. Zheng, X. Xu, **T. Wang***, T. Lu, CorrAdaptor: Adaptive Local Context Learning for Correspondence Pruning, *Proc. of European Conference on Artificial Intelligence (ECAI)*, 2024.
9. Z. Shao, **T. Wang***, K. Zhang, H. Dan, T. Lu, LLFA: Fusing Global Illumination and Local Priors for Low-Light Face Image Enhancement with Adaptor, *Proc. of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2025.
10. **T. Wang**, L Zhao, P Huang, X Zhang, J Xu, Haze Concentration Adaptive Network for Image Dehazing, *Neurocomputing*, 2021.
11. W. Wang, C. Du, **T. Wang**, K. Zhang, W. Luo, L. Ma, W. Liu, X. Cao, Punctuationlevel Attack: Single-shot and Single Punctuation Can Fool Text Models, *Proc. of Neural Information Processing Systems (**NeurIPS**)*, 2023.

12. X. Zhang, R. Jiang, **T. Wang**, W. Luo, Single Image Dehazing via Dual-Path Recurrent Network, *IEEE Trans. on Image Processing (**TIP**)*, 2021.
13. Z. Chen, H. Tan, **T. Wang**, T. Shen, T. Lu, Q. Peng, C. Cheng, Y. Qi, Graph Propagation Transformer for Graph Representation Learning, *Proc. of International Joint Conference on Artificial Intelligence (**IJCAI**)*, 2023.
14. Z. Kong, Y. Zhang, T. Yang, **T. Wang**, K. Zhang, B. Wu, G. Chen, W. Liu, W. Luo, Omg: Occlusion-friendly Personalized Multi-concept Generation in Diffusion Models, *Proc. of European Conference on Computer Vision (**ECCV**)*, 2024.
15. Z. He, M. Yang, S. Yang, Y. Tang, **T. Wang**, K. Zhang, G. Chen, Y. Liu, J. Jiang, MaterialMVP: Illumination-Invariant Material Generation via Multi-view PBR Diffusion, *Proc. of International Conference on Computer Vision (**ICCV**)*, 2025.
16. J. Tan, H. Park, Y. Zhang, **T. Wang**, K. Zhang, X. Kong, P. Dai, Z. Liu, W. Luo, Blind Face Video Restoration with Temporal Consistent Generative Prior and Degradation-Aware Prompt, *Proc. of ACM International Conference on Multimedia (**ACM MM**)*, 2024.
17. T. Liao, X. Zhang, L. Zhao, **T. Wang**, G. Xiao, VSFormer: Visual-Spatial Fusion Transformer for Correspondence Pruning, *Proc. of the Association for the Advancement of Artificial Intelligence (**AAAI**)*, 2024.
18. Z. Kong, L. Li, Y. Zhang, F. Gao, S. Yang, **T. Wang**, K. Zhang, Z. Kang, X. Wei, G. Chen, W. Luo, DAM-VSR: Disentanglement of Appearance and Motion for Video Super-Resolution, ***ACM SIGGRAPH***, 2025.
19. J. Xue, **T. Wang**, P. Dai, K. Zhang, Segmentation Guided Sparse Transformer for Under-Display Camera Image Restoration, *Proc. of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2025.
20. K. Zhang, **T. Wang**, W. Luo, W. Ren, B. Stenger, W. Liu, H. Li, M. Yang, MCBlur: A Comprehensive Benchmark for Image Deblurring, *IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, 2023.
21. X. Zhang, **T. Wang**, R. Jiang, L. Zhao, Multi-attention Convolutional Neural Network for Video Deblurring, *IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, 2021.
22. X. Zhang, **T. Wang**, G. Tang, L. Zhao, Y. Xu, S. Maybank, Single Image Haze Removal Based on A Simple Additive Model with Haze Smoothness Prior, *IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, 2021.
23. X. Zhang, **T. Wang**, J. Wang, G. Tang, L. Zhao, Pyramid Channel-based Feature Attention Network for Image Dehazing, *Computer Vision and Image Understanding (CVIU)*, 2020.
24. X. Chen, J. Tan, **T. Wang**, K. Zhang, W. Luo, X. Cao, Towards real-world blind face restoration with generative diffusion prior, *IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, 2024.
25. Z. Kong, W. Zhang, **T. Wang**, K. Zhang, Y. Li, X. Tang, W. Luo, Dual Teacher Knowledge Distillation with Domain Alignment for Face Anti-spoofing, *IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, 2024.
26. X. Zhang, Y. Xu, **T. Wang**, T. Liao, Multi-prior Driven Network for RGB-D Salient Object Detection, *IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, 2023.
27. J. Tan, X. Chen, **T. Wang**, K. Zhang, W. Luo, X. Cao, Blind Face Restoration for Under-Display Camera via Dictionary Guided Transformer, *IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, 2023.
28. X. Zhang, R. Jiang, **T. Wang**, J. Wang, Recursive Neural for Video Deblurring, *IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, 2020.

29. X. Zhang, J. Wang, **T. Wang**, R. Jiang, Robust Feature Learning via Hierarchical Feature Alignment, *Information Sciences*, 2021.
30. X. Zhang, J. Wang, **T. Wang**, R. Jiang, Hierarchical Feature Fusion with Mixed Convolution Attention for Single Image Dehazing, *IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, 2021.
31. W. Lu, J. Wang, **T. Wang**, K. Zhang, X. Jiang, H. Zhao, Visual Style Prompt Learning Using Diffusion Models for Blind Face Restoration, *Pattern Recognition (PR)*, 2025.
32. P. Xia, Tang. Liao, W. Zhu, D. Zhao, J. Ke, K. Zhang, T. Lu **T. Wang**, CorrMoE: Mixture of Experts with De-stylization Learning for Cross-Scene and Cross-Domain Correspondence Pruning, *Proc. of European Conference on Artificial Intelligence (ECAI)*, 2025.
33. M. Yuan, Q. Xu, C. Cai, Y. Zheng, **T. Wang**, T. Lu, W.Li, Uncertainty-Based Network for Few-Shot Image Classification, *Proc. of International Conference on Multimedia and Expo (ICME)*, 2022.

Preprint

1. **T. Wang**, W. Lu, K. Zhang, W. Luo, TK. Kim, T. Lu, H. Li, MH. Yang, PromptRR: Diffusion Models as Prompt Generators for Single Image Reflection Removal, arXiv preprint arXiv:2402.02374, 2024.
2. **T. Wang**, K. Zhang, X. Chen, W. Luo, J. Deng, T. Lu, X. Cao, W. Liu, H. Li, S. Zafeiriou, A Survey of Deep Face Restoration: Denoise, Super-Resolution, Deblur, Artifact Removal, arXiv:2211.02831, 2022.
3. X. Chen, **T. Wang**, Z. Shao, K. Zhang, W. Luo, T. Lu, Z. Liu, TK. Kim, H. Li, Deep Video Restoration for Under-Display Camera, arXiv preprint arXiv:2309.04752, 2023.
4. T. Liao, X. Zhang, G. Xiao, M. Li, T. Wang, M. Ye, CorrMAE: Pre-training Correspondence Transformers with Masked Autoencoder, arXiv preprint arXiv:2406.05773,2024.

Professional Service

Journal Reviewer

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- IEEE Transactions on Image Processing (TIP)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE Transactions on Multimedia (TMM)
- IEEE Transactions on Industrial Informatics (TII)
- IEEE Transactions on Intelligent Transportation Systems (TNNLS)
- Computer Vision and Image Understanding (CVIU)
- Neural Networks (NN)

Conference Reviewer

- Annual Conference on Neural Information Processing Systems (NeurIPS)
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
- International Conference on Computer Vision (ICCV)
- European Conference on Computer Vision (ECCV)
- ACM Special Interest Group on Computer Graphics and Interactive Techniques (ACM SIGGRAPH)
- International Conference on Learning Representations (ICLR)
- AAAI Conference on Artificial Intelligence (AAAI)
- International Joint Conference on Artificial Intelligence (IJCAI)
- ACM International Conference on Multimedia (ACM MM)
- Asian Conference on Computer Vision (ACCV)

Project experience

1. Guangdong Oppo Mobile Telecommunications Corporation Ltd. and Nanjing University Industry-university-research Project, Research on key techniques and applications of large-scale pre-training based on multivariate graph representation and comparative learning, 2022.
2. Graduate Innovation Funds of Wenzhou University, Video deblurring using multi-attention mechanism and feature fusion strategy, 2020, PI.
3. Science and Technology Innovation Activity Plan for College Students of Zhejiang Province, Single image dehazing research based on pyramid channel-based feature attention network, 2020, PI.

Patents

1. X.Zhang, **T. Wang**, R. Jiang, L. Zhao. A neural network video deblurring method based on multi-attention mechanism fusion. CN111539884B
2. X.Zhang, **T. Wang**, J. Wang, L. Zhao. A neural network image dehazing method based on mixed convolution channel attention mechanism and hierarchical learning. CN111539887B
3. X.Zhang, **T. Wang**, R. Jiang, L. Zhao. A video deblurring method based on spatio-temporal pyramid network and adversarial natural priors. CN111626944B
4. X.Zhang, **T. Wang**, R. Jiang, L. Zhao. An image dehazing method based on end-to-end haze concentration adaptive neural network. CN111915530B
5. X.Zhang, R. Jiang, **T. Wang**, J. Wang, L. Zhao. A neural network video deblurring method based on controllable feature space. CN111008939B

Computer Skills

Familiar with Matlab, knowledge of data structure and algorithm, technical skills in Python, Pytroch, and some software engineering