Tao Wang, Ph.D. Candidate

CONTACT INFORMATION

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EDUCATION

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

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**, 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**)

2. **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**)

3. **T. Wang**, G. T, W. Lu, K. Zhang, W. Luo, X. Zhang, T. Lu, Restoring Vision in Hazy Weather with Hierarchical Contrastive Learning, *Pattern Recognition (PR)*, 2023.

4. **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.

5. 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.

6. 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.

7. **T. Wang**, L Zhao, P Huang, X Zhang, J Xu, Haze Concentration Adaptive Network for Image Dehazing, *Neurocomputing*, 2021.

8. 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.

9. X. Zhang, R. Jiang, **T. Wang**, W. Luo, Single Image Dehazing via Dual-Path Recurrent Network, *IEEE Trans. on Image Processing (TIP)*, 2021.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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.

15. 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.

16. 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.

17. 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.

18. 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.

19. 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.

20. X. Zhang, R. Jiang, **T. Wang**, J. Wang, Recursive Neural for Video Deblurring, *IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, 2020.

21. X. Zhang, J. Wang, **T. Wang**, R. Jiang, Robust Feature Learning via Hierarchical Feature Alignment, *Information Sciences*, 2021.

22. 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.

23. 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, 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, arXiv preprint arXiv:2307.14659, 2023.

3. **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.

4. 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.

5. J. Xue, **T. Wang**, J. Wang, K. Zhang, W. Luo, W. Ren Z. Liu, H. Park, X. Cao, Segmentation Guided Sparse Transformer for Under-Display Camera Image Restoration, arXiv preprint arXiv:2403.05906, 2024.

6. 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, arXiv preprint arXiv:2401.01102, 2024.

PROFESSIONAL SERVICE

Journal Reviewer
- IEEE Transactions on Circuits and Systems for Video Technology
- IEEE Transactions on Multimedia
- IEEE Transactions on Industrial Informatics
- Computer Vision and Image Understanding

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)
- 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, experiences with C/C++, knowledge of data structure and algorithm, technical skills in Python, Pytroch, and some software engineering