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

PUBLICATIONS

(* indicates corresponding author)

1. **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**)
2. **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.
3. **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.
4. 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.
5. **T. Wang**, L Zhao, P Huang, X Zhang, J Xu, Haze Concentration Adaptive Network for Image Dehazing, ***Neurocomputing***, 2021.
6. 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.
7. X. Zhang, R. Jiang, **T. Wang**, W. Luo, Single Image Dehazing via Dual-Path Recurrent Network, *IEEE Trans. on Image Processing (**TIP**)*, 2021.
8. 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.
9. 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.
10. 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.
11. 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.

12. 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.
13. 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.
14. X. Zhang, R. Jiang, **T. Wang**, J. Wang, Recursive Neural for Video Deblurring, *IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, 2020.
15. X. Zhang, J. Wang, **T. Wang**, R. Jiang, Robust Feature Learning via Hierarchical Feature Alignment, *Information Sciences*, 2021.
16. 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.
17. 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**, 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, arXiv preprint arXiv:2305.17863, 2023.
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. Tan, X. Chen, **T. Wang**, K. Zhang, W. Luo, X. Cao, Blind Face Restoration for Under-Display Camera via Dictionary Guided Transformer, arXiv preprint arXiv:2308.10196, 2023.

Professional Service

Journal Reviewer

- IEEE Transactions on Circuits and Systems for Video Technology
- IEEE Transactions on Multimedia
- IEEE Transactions on Industrial Informatics

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)

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