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Working Experience

The Hong Kong University of Science and Technology

Hong Kong

Jun, 2024 - present

Shenzhen, China

Shenzhen, China

Jul, 2022 - Mar, 2024

Mar, 2020 - Jul, 2022

Jul, 2019 – Jan, 2020 Shenzhen, China

Aug, 2016 - May, 2019

Oct, 2012 – Jun, 2016

London, UK

Beijing, China Sep, 2009 – Jul, 2012

Wuhan, China

Sep, 2005 – Jul, 2009

Palo Alto, CA, USA

Associate Professor
 Sun Yat-sen University
 Associate Professor

Tencent

• Senior Researcher

Amazon

• Research Scientist

Tencent

• Senior Researcher

EDUCATION

Imperial College London

• Ph.D. in Computer Science

Institute of Automation, Chinese Academy of Sciences

• M.E. in Control Theory and Control Engineering

Huazhong University of Science and Technology

• B.E. in Automation

Creative AI, Generative Model, Computer Vision, Machine Learning

RESEARCH INTERESTS

Publications

(† indicates correspondence, * indicates equal contribution)

- Z. Kong, F. Gao, Y. Zhang[†], Z. Kang, X. Wei, X. Cai, G. Chen, W. Luo[†], Let Them Talk: Audio-Driven Multi-Person Conversational Video Generation, Neural Information Processing Systems (NeurIPS), 2025.
- 2. Y. Cai, Z. Jiang, Y. Liu, C. Jiang, W. Xue, Y. Guo, W. Luo, Foundation Cures Personalization: Improving Personalized Models' Prompt Consistency via Hidden Foundation Knowledge, Neural Information Processing Systems (NeurIPS), 2025.
- Z. He, M. Yang, S. Yang, Y. Tang, T. Wang, K. Zhang, G. Chen, Y. Liu, J. Jiang, C. Guo, W. Luo†, Material MVP: Illumination-Invariant Material Generation via Multi-view PBR Diffusion, Proc. of International Conference on Computer Vision (ICCV), 2025. (Highlight)
- 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.
- R. Guan, T. Liu, W. Tu, C. Tang, W. Luo, X. Liu, Sampling Enhanced Contrastive Multi-View Remote Sensing Data Clustering with Long-Short Range Information Mining, *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, vol. 37, pp. 5598-5612, 2025.
- M. Li, X. Long, Y. Liang, W. Li, Y. Liu, P. Li, W. Luo, W. Wang, Y. Guo, Multi-View Large Reconstruction Model via Geometry-Aware Positional Encoding and Attention, *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, vol. 31, pp. 8564-8577, 2025.
- 7. X. Chen, Y. Li, H. Shi, B. Hu, **W. Luo**, Y. Wang, M. Zhang, VideoVista-CulturalLingo: 360° Horizons-Bridging Cultures, Languages, and Domains in Video Comprehension,

- The 63rd Annual Meeting of the Association for Computational Linguistics (ACL), 2025.
- 8. 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.
- P. Li, S. Ma, J. Chen, Y. Liu, C. Zhang, W. Xue, W. Luo, A. Sheffer, W. Wang, Y. Guo, ACM SIGGRAPH, 2025.
- Z. Jin, Y. Qiu, K. Zhang, H. Li, W. Luo[†], MB-TaylorFormer V2: Improved Multi-branch Linear Transformer Expanded by Taylor Formula for Image Restoration, IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), vol. 47, pp. 5990–6005, 2025.
- T. Wang, K. Zhang, Y. Zhang, W. Luo†, B. Stenger, T. Lu, T. Kim, W. Liu, H. Li, LLDiffusion: Learning Degradation Representations in Diffusion Models for Low-Light Image Enhancement, *Pattern Recognition (PR)*, vol. 166, pp. 111628, 2025.
- 12. Z. Ye, H. Huang[†], X. Wang, P. Wan, D. Zhang, **W. Luo**[†], StyleMaster: Stylize Your Video with Artistic Generation and Translation, *Proc. of IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2025.
- 13. P. Li, W. Zheng, Y. Liu, T. Yu, Y. Li, X. Qi, X. Chi, S. Xia, Y. Cao, W. Xue, W. Luo, Y. Guo, PSHuman: Photorealistic Single-image 3D Human Reconstruction using Cross-Scale Multiview Diffusion and Explicit Remeshing, Proc. of IEEE Conf. on Computer Vision and Pattern Recognition (CVPR), 2025.
- 14. X. Mao, Z. Jiang, F. Wang, J. Zhang, H. Chen, M. Chi, Y. Wang, W. Luo, OSV: One Step is Enough for High-Quality Image to Video Generation, Proc. of IEEE Conf. on Computer Vision and Pattern Recognition (CVPR), 2025.
- J. Xue, H. Wang, Q. Tian, Y. Ma, A. Wang, Z. Zhao, S. Min, W. Zhao, K. Zhang, H. Shum, W. Liu, M. Liu, W. Luo†, Towards Multiple Character Image Animation Through Enhancing Implicit Decoupling, *International Conference on Learning Representations (ICLR)*, 2025.
- 16. X. Qi, Y. Wang, H. Zhang, J. Pan, W. Xue, S. Zhang, W. Luo, Q. Liu, Y. Guo, Co³Gesture: Towards Coherent Concurrent Co-speech 3D Gesture Generation with Interactive Diffusion, International Conference on Learning Representations (ICLR), 2025.
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- 18. P. Li, Y. Liu, X. Long, F. Zhang, C. Lin, M. Li, X. Qi, S. Zhang, **W. Luo**, P. Tan, W. Wang, Q. Liu, Y. Guo, Era3D: High-Resolution Multiview Diffusion using Efficient Row-wise Attention, *Neural Information Processing Systems* (*NeurIPS*), 2024.
- L. Li, P. Dong, Z. Tang, X. Liu, Q. Wang, W. Luo, W. Xue, Q. Liu, X. Chu, Y. Guo, Discovering Sparsity Allocation for Layer-wise Pruning of Large Language Models, Neural Information Processing Systems (NeurIPS), 2024.
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- 22. 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)*, vol. 34, pp. 13177-13189, 2024.
- 23. 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, *The 32rd ACM International Conference on Multimedia* (*ACM MM*), 2024.
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- 25. B. Tang, K. Zhang[†], W. Luo[†], W. Liu, H. Li, Prompting Future Driven Diffusion Model for Hand Motion Prediction, *European Conference on Computer Vision* (*ECCV*), 2024.
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- L. Li, Z. Wei, P. Dong, W. Luo, W. Xue, Q. Liu, Y. Guo, AttnZero: Efficient Attention Discovery for Vision Transformers, European Conference on Computer Vision (ECCV), 2024.
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- 38. 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)*, vol. 34, pp. 4914-4927, 2024.
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- 64. F. Zhong, P. Sun, W. Luo, T. Yan, Y. Wang, Towards Distraction-Robust Active Visual Tracking, *International Conference on Machine Learning (ICML)*, 2021.
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- 67. Y. Li, H. Tang, W. Xie, and W. Luo, Multidimensional Local Binary Pattern for Hyperspectral Image Classification, *IEEE Trans. on Geoscience and Remote Sensing* (TGRS), vol. 60, pp. 1-13, 2022.
- 68. K. Zhang, W. Luo[†], L. Ma, W. Ren, and H. Li, Disentangled Feature Networks for Facial Portraits Generation, *IEEE Transactions on Multimedia (TMM)*, vol. 24, pp. 1378-1388, 2022.
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- 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), vol. 31, pp. 4162-4173, 2021.
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- 78. W. Xiong, Y. He, Y. Zhang, W. Luo, L. Ma, J. Luo, Fine-grained Image-to-Image Transformation towards Visual Recognition, *Proc. of IEEE Conf. on Computer Vision and Pattern Recognition* (CVPR), USA, 2020.
- 79. F. Zhong, P. Sun, W. Luo, T. Yan, Y. Wang, AD-VAT+: An Asymmetric Dueling mechanism for learning and understanding Visual Active Tracking, *IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)*, vol. 43, pp. 1467-1482, 2021.
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- 82. Z. Chen, L. Ma[†], **W. Luo**[†], K.-Y. K. Wong, Weakly-Supervised Spatio-Temporally Grounding Natural Sentence in Video, *The 57th Annual Meeting of the Association for Computational Linguistics (ACL)*, Italy, 2019. (Oral Presentation)
- 83. X. Yang*, W. Luo*, L. Bao, Y. Gao, D. Gong, S. Zheng, Z. Li, W. Liu, Face Anti-Spoofing: Model Matters, So Does Data, *Proc. of IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, USA, 2019.
- 84. K. Zhang, W. Luo, L. Ma, W. Liu, H. Li, Learning Joint Gait Representation via Quintuplet Loss Minimization, *Proc. of IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, USA, 2019. (Oral Presentation)
- 85. J. Wan, W. Luo, B. Wu, A. Chan, W Liu, Residual Regression with Semantic Prior for Crowd Counting, *Proc. of IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, USA, 2019.
- 86. K. Tang, H. Zhang, B. Wu, W. Luo, W. Liu, Learning to Compose Dynamic Tree Structures for Visual Contexts, *Proc. of IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, USA, 2019. (Oral Presentation, Best Paper Finalist)
- 87. W. Luo*, P. Sun*, F. Zhong*, W. Liu, T. Zhang and Y. Wang, End-to-end Active Object Tracking and Its Real-world Deployment via Reinforcement Learning, *IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)*, vol. 42, pp. 1317-1332, 2020.
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- 89. K. Zhang, W. Luo†, L. Ma, H. Li, Cousin Network Guided Sketch Recognition via Latent Attribute Warehouse, *Proc. of the Association for the Advancement of Artificial Intelligence (AAAI)*, 2019. (Spotlight Presentation)
- 90. W. Luo, B. Stenger, X. Zhao, T-K. Kim, Trajectories as Topics: Multi-Object Tracking by Topic Discovery, *IEEE Trans. on Image Processing (TIP)*, vol. 28, no. 1, pp. 240-252, 2019.
- 91. K. Zhang, **W. Luo**, Y. Zhong, L. Ma, W. Liu, H. Li, Adversarial Spatio-Temporal Learning for Video Deblurring, *IEEE Trans. on Image Processing (TIP)*, vol. 28, no. 1, pp. 291-301, 2019.
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- 93. W. Luo*, P. Sun*, F. Zhong, W. Liu, T. Zhang and Y. Wang, End-to-end Active Object Tracking via Reinforcement Learning, *International Conference on Machine Learning (ICML)*, Sweden, 2018.
- 94. W. Xiong, W. Luo, L. Ma, W. Liu and J. Luo, Learning to Generate Time-Lapse Videos Using Multi-Stage Dynamic Generative Adversarial Networks. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018.
- 95. H. Huang, H. Wang, W. Luo, L. Ma, W. Jiang, X. Zhu, Z. Li, W. Liu, Real-Time Neural Style Transfer for Videos. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017.
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- W. Luo, T-K. Kim, B. Stenger, X. Zhao, R. Cipolla. Bi-label Propagation for Generic Multiple Object Tracking. *IEEE Conference on Computer Vision and Pat*tern Recognition (CVPR), 2014.
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Professional Service

Senior Area Editor: IEEE Signal Processing Letters (2025 - current)

Associate Editor: IEEE Transactions on Image Processing (2025 - current), Neuro-computing (2024 - current), IET Computer Vision (2024 - current)

Guest Editor: CVIU (Sep 2020 - Sep 2021)

Area Chair: ICLR 2026, NeurIPS 2025, ACM MM 2025, ICML 2025, IJCAI 2025, IJCNN 2025, BMVC (2025, 2024)

Conference Organization/Service: SIGGRAPH Asia 2025 (Conflict-of-Interest Coordinator), CVM 2025 (Workshop Chair)

Senior Program Committee: IJCAI (2024, 2023, 2021), AAAI (2026, 2025, 2024, 2022)

Journal Reviewer: TPAMI, TIP, CSUR, TNNLS, TMM, TCSVT, PR Conference Reviewer: ICML, NeurIPS, CVPR, ACL, ECCV, ICCV, BMVC, AAAI, IJCAI, ACM MM, WACV

Talks

- Shenzhen University, hosted by Prof. Yanshan Li, Mar, 2025.
- Shenzhen University, hosted by Prof. Xu Wang, Dec, 2024.
- Zhejiang University, hosted by Prof. Qi Ye, Oct, 2024.
- Southern University of Science and Technology, hosted by Prof. Feng Zheng, Jul,

2024.

- Wuhan University, hosted by Prof. Guisong Xia, Apr., 2024
- Zhejiang University, hosted by Dr. Qi Ye, Jun, 2022.
- Shenzhen University, hosted by Prof. Yanshan Li, Feb, 2022.
- Beijing Institute of Technology, hosted by Prof. Changsheng Li, Jan, 2022.
- Southern University of Science and Technology, hosted by Prof. Xiaoying Tang, Sep, 2020.
- The Shenzhen Institutes of Advanced Technology, Chinese Academy of Science (CAS), hosted by Prof. Yun Zhang, Sep. 2018.
- The Institute of Automation, Chinese Academy of Science, hosted by Prof. Weiming Hu, Aug, 2018.
- Graduate School of Shenzhen, Tsinghua University, hosted by Prof. Yujiu Yang, June, 2018.

PATENTS

- W. Luo, L. Bao, Y. Gao, W. Liu, Method and apparatus for generating negative sample of face recognition, and computer device, US 11302118 B2
- W. Luo, Y. Wang, W. Liu, Living body detection method and apparatus, electronic device, storage medium, and related system to which living body detection method is applied, US 2021/0073516 A1
- W. Luo, L. Ma, W. Liu, Neural network model training method and device, and time-lapse photography video generating method and device, US 2020/0293833 A1
- W. Luo, Target Tracking Method And Apparatus, Electronic Device, And Storage Medium, US 11145069 B2
- K. Zhang, W. Luo, L. Ma, W. Liu, Video Deblurring Method And Apparatus, Storage Medium, And Electronic Apparatus, US 2020/0372618 A1
- K. Zhang, W. Luo, L. Ma, W. Liu, Media processing method, related apparatus, and storage medium, US 11335127 B2
- K. Zhang, W. Luo, L. Ma, W. Liu, Image recognition method and apparatus, terminal, and storage medium, US2020/0302180 A1
- K. Zhang, W. Luo, H. Li, Image processing method and apparatus, computer device, and storage medium, US 2021/0256663 A1
- K. Zhang, W. Luo, L. Ma and W. Liu, Microexpression-based image recognition method and apparatus, and related device. US20210174072A1
- Z. Chen, L. Ma, W. Luo, W Liu, Video sequence selection method, computer device, and storage medium, US 2021/0224601 A1
- Z. Chen, L. Ma, W. Luo, W Liu, Video clip positioning method and apparatus, computer device, and storage medium, US 2021/0349940 A1
- H. Huang, H. Wang, W. Luo, L. Ma, W. Jiang, X. Zhu, Z. Li, W. Liu, Method And Apparatus For Training Neural Network Model Used For Image Processing, And Storage Medium, US 2021/0182616 A1

Awards and Honors

- CCF-Tencent Rhino-Bird Faculty Fund Excellence Award, 2024
- Champion award in the Bracketing Image Restoration and Enhancement Challenge
 Track 1 & 2, NTIRE 2024, in conjuction of CVPR 2024
- The second place in the Few-shot RAW Image Denoising competition of MIPI 2024, in conjuction of CVPR 2024
- Top 2% Scientists Worldwide, 2023 & 2024.
- ACM China Rising Star (Guangzhou Chapter), 2022.
- CVPR Best Paper Finalist, 2019.

Thesis

W. Luo, Generic Multiple Object Tracking, Dept. of Electrical and Electronic Engineering, Imperial College London, 2016.

LANGUAGE

Mandarin (mother tongue)
English (strong at reading and writing, good at listening, fluent in speaking)

German (elementary knowledge)