Dr. Jiaying Liu

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RESEARCH INTERESTS

Multimedia and signal processing with emphasis on Intelligent Image/Video Processing and Compression, Computer Vision, including

- Image/Video Compression
- Image/Video Restoration and Enhancement
- Image/Video Stylization and Generation
- Video Understanding and Analytics

EDUCATION

- **Peking University**   Beijing, China
  Ph.D. in Computer Science   09/2005 – 07/2010
  Thesis: Rate Distortion Optimization Based Scalable Video Coding
  Advisor: Prof. Zongming Guo

- **Northwestern Polytechnic University**   Xi'an, Shaanxi, China
  B.E. in Computer Science / Honor Class   09/2001 – 06/2005

CURRENT AND PREVIOUS ACADEMIC POSITIONS

- **Peking University**   Beijing, China
  Tenured Associate Professor, Wangxuan Institute of Computer Technology   02/2025 – Present
  Associate Professor, Wangxuan Institute of Computer Technology   08/2012 – 01/2025
  Assistant Professor, Wangxuan Institute of Computer Technology   07/2010 – 07/2012

RESEARCH EXPERIENCES

- **University of Southern California**   Los Angeles, CA, US
  Visiting PhD Student   08/2007 – 08/2008
  Collaborate with Prof. C.-C. Jay Kuo

- **Microsoft Research Asia**   Beijing, China
  Visiting Researcher, Internet Multimedia (IM) Group   03/2015 – 10/2015
  MSRA Star Track for Young Faculties Program

HONORS AND AWARDS

a. Faculty Research Awards

- Award of Changjiang Scholar Distinguished Professor, Ministry of Education of China, 2025
- IEEE Fellow, 2025
- Beijing Technology Invention Award (Rank 2/12), Second prize, 2024
- Award of Changjiang Young Scholars Program (Renewed), Ministry of Education of China, 2023
- Best Paper Award in Multimedia Systems and Applications Technical Committee, IEEE Circuits and Systems Society, 2022
- Wang Xuan Young Scientist Award, Peking University, 2021
- Best Paper Award in *IEEE International Conference on Multimedia & Expo* (ICME), 2020 (first prize from over 800 submitted papers)
- Peking University Boya Young Fellow, 2020
- Award of Changjiang Young Scholars Program, Ministry of Education of China, 2019
- Collaborative Research Award, Microsoft Research Asia, 2019
- Shi Qingyun Young Female Scientist Award, China Society of Image and Graphics, 2018
- CCF-Tencent Rhino Bird Research Fund Patent Award, CCF-Tencent, 2018
- Best Paper Award in *International Forum of Digital TV and Wireless Multimedia Communication* (IFTC), 2017
- Distinguished Lecturer, APSIPA, 2016-2017
- Wang Xuan Young Teacher Award, First Prize, Peking University, 2016
- Top 10% Paper Award in *IEEE International Workshop on Multimedia Signal Processing* (MMSP), 2015

b. Faculty Teaching Awards

- Award of Outstanding Teaching Team, Peking University, 2023 (Course Team Leader)
- Intelligent-Foundation Program Excellent Teaching Resource Award, Ministry of Education-Huawei, 2022
- Intelligent-Foundation Program Outstanding Contribution Award, Ministry of Education-Huawei, 2021
- National First-Class Undergraduate Course Program, Ministry of Education of China, 2020
- Teaching Achievement Award, Peking University, 2018
- Tsang Hin-chi Excellent Teaching Award, Peking University, 2018
- Yang Fuqing & Wang Yangyuan Academician Scholarship, Peking University, 2017
- Excellent Teaching Award, Peking University, 2015

c. Faculty Service Awards

- Outstanding Area Chair Award in ACM International Conference on Multimedia (ACM MM), 2024
- Best Editor Award in Journal of Visual Communication and Image Representation (JVCI), 2023
- Award of Rhino Bird Excellent Mentor for Cultivating Top Talents (Ten years), Tencent, 2023
- Outstanding Area Chair Award in Asian Conference on Computer Vision (ACCV), 2022
- Outstanding Reviewer Award in IEEE Transactions on Multimedia (TMM), 2021
- Outstanding Service Award in IEEE International Conference on Multimedia & Expo (ICME), 2019
- Outstanding Area Chair Award in IEEE International Conference on Visual Communication and Image Processing (VCIP), 2019

d. Research Competition Prizes

- IEEE ICME 2024 Multi-Modal Video Reasoning and Analyzing: UAV-Human track, 1st place, July 2024
- IEEE ICME 2023 Vision Task Challenges in Real-world Rain Scenes, 2nd place, July 2023

- IEEE MMSP 2021 Challenge on Structure-Guided Image Inpainting, 1st place, Oct. 2021
- CVPR 2018 UG2 Prize Challenge (track 2), 2nd place, May 2018
- ACCV 2016 Large Scale 3D Human Activity Analysis Challenge, 1st place, 2016

MEMBERSHIPS IN PROFESSIONAL AND HONORARY SOCIETIES

- Senior Member, ACM and CSIG
- Distinguished Member, CCF

UNIVERSITY COMMITTEE ASSIGNMENTS

Deputy Director	National Engineering Center of Electronic Publishing New Technologies	2023 - present
Institute-	Member, Graduate Admission Committee	2019 - present
School-	Member, Undergraduate Teaching Admission Committee of AI Track	2022 - present
University-	Member, Faculty and Staff Representative Congress	2023 - present

SELECTED PUBLICATIONS

Summary: 100+ journal papers, 100+ conference papers, several standards contributions and invited talks. A large number of papers have been widely cited.

Total # of citations: 23000+, h-index: 69. For more up-to-date information, see

https://scholar.google.com/citations?user=-OcSne0AAAAJ&hl=en&oi=ao

Refereed Journal Papers

[1] Wenjing Wang, Huan Yang, Zixi Tuo, Huiguo He, Junchen Zhu, Jianlong Fu, and Jiaying Liu. "Swap Attention in Spatiotemporal Diffusions for Text-to-Video Generation", Accepted by International Journal of Computer Vision (IJCV), 2025.

[2] Luyao Zhang, Shuai Yang, Wenjing Wang, Xiang Gao, and Jiaying Liu. "AIGC-Based Image and Video Generation Method: A Review", Journal of Computer-Aided Design & Computer Graphics, Vol.37, No.3, pp.361-384, Apr. 2025.

[3] Wenhan Yang, Haofeng Huang, Jiaying Liu, and Alex Kot. "Facial Image Compression via Neural Image Manifold Compression", IEEE Trans. on Circuits and Systems for Video Technology (TCSVT), Vol.35, No.4, pp.3812-3824, Apr. 2025.

[4] Wenhan Yang, Haofeng Huang, Yueyu Hu, Ling-Yu Duan, and Jiaying Liu. "Video Coding for Machines: Compact Visual Representation Compression for Intelligent Collaborative Analytics", IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), Vol.46, No.7, pp.5174-5191, July 2024.

[5] Wenhan Yang, Robby T. Tan, Shiqi Wang, Alex C. Kot, and Jiaying Liu. "Learning to Remove Rain in Video with Self-Supervision", IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), Vol.46, No.3, pp.1378-1396, Feb. 2024.

[6] Wenjing Wang, Rundong Luo, Wenhan Yang, and Jiaying Liu. "Unsupervised Illumination Adaptation for Low-Light Vision", IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), Vol.46, No.9, pp.5951-5966, Mar. 2024.

[7] Lilang Lin, Jiahang Zhang, and Jiaying Liu. "Mutual Information Driven Equivariant Contrastive Learning for 3D Action Representation Learning", IEEE Trans. on Image Processing (TIP), Vol.33, pp.1883-1897, Mar. 2024.

[8] Zejia Fan, Wenhan Yang, Zongming Guo, and Jiaying Liu. "Towards Real-World Super Resolution with Adaptive Self-Similarity Mining", IEEE Trans. on Image Processing (TIP), Vol.33, pp.5959-5974, Oct. 2024.

[9] Yiyang Ma, Haowei Kuang, Huan Yang, Jianlong Fu, and Jiaying Liu. "Prompt-Based Modality Bridging for Unified Text-to-Face Generation and Manipulation", ACM Trans. on Multimedia Computing Communications and Applications (TOMM), Vol.20, No.386, pp.1-23, Nov. 2024.

[10] Jialu Sui, Yiyang Ma, Wenhan Yang, Xiaokang Zhang, Man-On Pun, and Jiaying Liu. "Diffusion Enhancement for Cloud Removal in Ultra-Resolution Remote Sensing Imagery", IEEE Trans. on Geoscience and Remote Sensing (TGRS), Vol.62, pp.1-14, June 2024.

[11] Jiahang Zhang, Lilang Lin, Zejia Fan, Wenjing Wang, and Jiaying Liu. "S5Mars: Semi-Supervised Learning for Mars Semantic Segmentation", IEEE Trans. on Geoscience and Remote Sensing (TGRS), Vol.62, pp.1-15, Apr. 2024.

[12] Wendong Mao, Shuai Yang, Huihong Shi, Jiaying Liu, and Zhongfeng Wang. "Intelligent Typography: Artistic Text Style Transfer for Complex Texture and Structure", IEEE Trans. on Multimedia (TMM), Vol. 25, pp.6485-6498, Nov. 2023.

[13] Meiqi Wang, Tianqi Su, Siyi Chen, Wenhan Yang, Jiaying Liu, and Zhongfeng Wang. "Automatic Model-Based Dataset Generation for High-Level Vision Tasks of Autonomous Driving in Haze Weather", IEEE Trans. on Industrial Informatics (TII), Vol.19, No.8, pp.9071-9081, Aug. 2023.

[14] Wenjing Wang, Lilang Lin, Zejia Fan, and Jiaying Liu. "Semi-Supervised Learning for Mars Imagery Classification and Segmentation", ACM Trans. on Multimedia Computing Communications and Applications (TOMM), Vol.19, No.4, pp.1-13, Mar. 2023.

[15] Wenjing Wang, Xinhao Wang, Wenhan Yang, and Jiaying Liu. "Unsupervised Face Detection in the Dark", IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), Vol.45, No.1, pp.1250-1266, Jan. 2023.

[16] Yuzhang Hu, Wenhan Yang, Jiaying Liu, and Zongming Guo. "Deep Inter Prediction with Error-Corrected Auto-Regressive Network for Video Coding", ACM Trans. on Multimedia Computing Communications and Applications (TOMM), Vol.19, No.33, pp.1-22, Jan. 2023.

[17] Wenhan Yang, Robby T. Tan, Jiashi Feng, Shiqi Wang, and Jiaying Liu. "Recurrent Multi-Frame Deraining: Combining Physics Guidance and Adversarial Learning", IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), Vol.44, No.11, pp.8569-8586, Nov. 2022.

[18] Xinhao Wang, Shuai Yang, Wenjing Wang, and Jiaying Liu. "Artistic Text Style Transfer", IEEE Signal Processing Magazine (SPM), Vol.39, pp.10-17, Nov. 2022.

[19] Chien-Lung Chou, Chieh-Yun Chen, Chia-Wei Hsieh, Hong Han Shuai, Jiaying Liu, and Wen-Huang Cheng. "Template-Free Try-on Image Synthesis via Semantic-guided Optimization", IEEE Trans. on Neural Networks and Learning Systems (TNNLS), Vol.33, No.9, pp.4584-4597, Sep. 2022.

[20] Yueyu Hu, Wenhan Yang, Zhan Ma, and Jiaying Liu. "Learning End-to-End Lossy Image Compression: A Benchmark", IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), Vol.44, No.8, pp.4194-4211, Aug. 2022.

[21] Shuai Yang, Zhangyang Wang, and Jiaying Liu. "Shape-Matching GAN＋＋: Scale Controllable Dynamic Artistic Text Style Transfer", IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), Vol.44, No.7, pp.3807-3820, July 2022.

[22] Nam Ling, C.-C. Jay Kuo, Gary J. Sullivan, Dong Xu, Shan Liu, Hsueh-Ming Hang, Wen-Hsiao Peng, and Jiaying Liu. "The Future of Video Coding", APSIPA Trans. on Signal and Information Processing, Vol.11, June 2022.

[23] Jinxiu Liang, Jingwen Wang, Yuhui Quan, Tianyi Chen, Jiaying Liu, Haibin Ling, and Yong Xu. "Recurrent Exposure Generation for Low-Light Face Detection", IEEE Trans. on Multimedia (TMM), Vol.24, pp.1609-1621, Mar. 2022.

[24] Sijie Song, Jiaying Liu, Lilang Lin, and Zongming Guo. "Learning to Recognize Human Actions from Noisy Skeleton Data via Noise Adaptation", IEEE Trans. on Multimedia (TMM), Vol.24, pp.1152-1163, Mar. 2022.

[25] Xinhao Wang, Wenjing Wang, Shuai Yang, and Jiaying Liu. "CLAST: Contrastive Learning for Arbitrary Style Transfer", IEEE Trans. on Image Processing (TIP), Vol.31, pp.6761-6772, 2022.

[26] Haofeng Huang, Wenhan Yang, Yueyu Hu, Jiaying Liu, and Ling-Yu Duan. "Towards Low Light Enhancement with RAW Images", IEEE Trans. on Image Processing (TIP), Vol.31, pp.1391-1405, 2022.

[27] Rosaura G. VidalMata, Sreya Banerjee, Brandon RichardWebster, Michael Albright, Pedro Davalos, Scott McCloskey, Ben Miller, Asong Tambo, Sushobhan Ghosh, Sudarshan Nagesh, Ye Yuan, Yueyu Hu, Junru Wu, Wenhan Yang, Xiaoshuai Zhang, and Jiaying Liu, et al. "Bridging the Gap Between Computational Photography and Visual Recognition", IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), Vol.43, No.12, pp.4272-4290, Dec. 2021.

[28] Sijie Song, Wei Zhang, Jiaying Liu, Zongming Guo, and Tao Mei. "Unpaired Person Image Generation with Semantic Parsing Transformation", IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), Vol.43, No.11, pp.4161-4176, Nov. 2021.

[29] Wenhan Yang, Robby T. Tan, Shiqi Wang, Yuming Fang, and Jiaying Liu. "Single Image Deraining: From Model-Based to Data-Driven and Beyond", IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), Vol.43, No.11, pp.4059-4077, Nov. 2021.

[30] Shuai Yang, Wenjing Wang, and Jiaying Liu. "TE141K: Artistic Text Benchmark for Text Effect Transfer", IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), Vol.43, No.10, pp.3709-3723, Oct. 2021.

[31] Shuai Yang, Yueyu Hu, Wenhan Yang, Ling-Yu Duan, and Jiaying Liu. "Towards Coding for Human and Machine Vision: Scalable Face Image Coding", IEEE Trans. on Multimedia (TMM), Vol.23, pp.2957-2971, Sep. 2021.

[32] Wen-Huang Cheng, Sijie Song, Chieh-Yun Chen, Shintami Chusnul Hidayati, and Jiaying Liu. "Fashion Meets Computer Vision: A Survey", ACM Computing Surveys (CSUR), Vol.54, No.4, pp.1-41, July 2021.

[33] Jiaying Liu, Dejia Xu, Wenhan Yang, Minhao Fan, and Haofeng Huang. "Benchmarking Low-Light Image Enhancement and Beyond", International Journal of Computer Vision (IJCV), Vol.129, pp.1153-1184, Jan. 2021.

[34] Shuai Yang, Zhangyang Wang, Jiaying Liu, and Zongming Guo. "Controllable Sketch-to-Image Translation for Robust Face Synthesis", IEEE Trans. on Image Processing (TIP), Vol.30, pp.8797-8810, 2021.

[35] Dezhao Wang, Sifeng Xia, Wenhan Yang, and Jiaying Liu. "Combining Progressive Rethinking and Collaborative Learning: A Deep Framework for In-Loop Filtering", IEEE Trans. on Image Processing (TIP), Vol.30, pp.4198-4211, 2021.

[36] Wenhan Yang, Shiqi Wang, Yuming Fang, Yue Wang, and Jiaying Liu. "Band Representation-Based Semi-Supervised Low-Light Image Enhancement: Bridging the Gap Between Signal Fidelity and Perceptual Quality", IEEE Trans. on Image Processing (TIP), Vol.30, pp.3461-3473, 2021.

[37] Wenhan Yang, Haofeng Huang, Wenjing Wang, Shiqi Wang, and Jiaying Liu. "Sparse Gradient Regularized Deep Retinex Network for Robust Low-Light Image Enhancement", IEEE Trans. on Image Processing (TIP), Vol.30, pp.2072-2086, 2021.

[38] Jiaying Liu, Sifeng Xia, and Wenhan Yang. "Deep Reference Generation with Multi-Domain Hierarchical Constraints for Inter Prediction", IEEE Trans. on Multimedia (TMM), Vol.22, No.10, pp.2497-2510, Oct. 2020.

[39] Wenhan Yang, Robby T. Tan, Jiashi Feng, Zongming Guo, Shuicheng Yan, and Jiaying Liu. "Joint Rain Detection and Removal from a Single Image with Contextualized Deep Networks", IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), Vol.42, No.6, pp.1377-1393, June 2020.

[40] Jiaying Liu, Sijie Song, Chunhui Liu, Yanghao Li, and Yueyu Hu. "A Benchmark Dataset and Comparison Study for Multi-Modal Human Action", ACM Trans. on Multimedia Computing, Communications, and Applications (TOMM), Vol.16, No.2, pp.1-24, May 2020.

[41] Wenjing Wang, Shuai Yang, Jizheng Xu, and Jiaying Liu. "Consistent Video Style Transfer via Relaxation and Regularization", IEEE Trans. on Image Processing (TIP), Vol.29, pp.9125-9139, 2020.

[42] Lingyu Duan, Jiaying Liu, Wenhan Yang, Tiejun Huang, and Wen Gao. "Video Coding for Machines: A Paradigm of Collaborative Compression and Intelligent Analytics", IEEE Trans. on Image Processing (TIP), Vol.29, pp.8680-8695, 2020.

[43] Jiaying Liu, Dong Liu, Wenhan Yang, Sifeng Xia, Xiaoshuai Zhang, and Yueying Dai. "A Comprehensive Benchmark for Single Image Compression Artifact Reduction", IEEE Trans. on Image Processing (TIP), Vol.29, pp.7845-7860, 2020.

[44] Wenhan Yang, Shiqi Wang, and Jiaying Liu. "Removing Arbitrary-Scale Rain Streaks via Fractal Band Learning with Self-Supervision", IEEE Trans. on Image Processing (TIP), Vol.29, pp.6759-6772, 2020.

[45] Xutong Ren, Wenhan Yang, Wen-Huang Cheng, and Jiaying Liu. "LR3M: Robust Low-Light Enhancement via Low-Rank Regularized Retinex Model", IEEE Trans. on Image Processing (TIP), Vol.29, pp.5862-5876, 2020.

[46] Wenhan Yang, Ye Yuan, Wenqi Ren, Jiaying Liu, Walter J. Scheirer, and Zhangyang Wang, et al. "Advancing Image Understanding in Poor Visibility Environments: A Collective Benchmark Study", IEEE Trans. on Image Processing (TIP), Vol.29, pp.5737-5752, 2020.

[47] Sijie Song, Jiaying Liu, Yanghao Li, and Zongming Guo. "Modality Compensation Network: Cross-Modal Adaptation for Action Recognition", IEEE Trans. on Image Processing (TIP), Vol.29, pp.3957-3969, 2020.

[48] Mading Li, Jiaying Liu, Xiaoyan Sun, and Zhiwei Xiong. "Image/Video Restoration via Multiplanar Autoregressive Model and Low-Rank Optimization", ACM Trans. on Multimedia Computing, Communications, and Applications (TOMM), Vol.15, No.4, pp.1-23, Dec. 2019.

[49] Yueyu Hu, Wenhan Yang, Mading Li, and Jiaying Liu. "Progressive Spatial Recurrent Neural Network for Intra Prediction", IEEE Trans. on Multimedia (TMM), Vol.21, No.12, pp.3024-3037, Dec. 2019.

[50] Jiaying Liu, Yanghao Li, Sijie Song, Junliang Xing, Cuiling Lan, and Wenjun Zeng. "Multi-Modality Multi-Task Recurrent Neural Network for Online Action Detection", IEEE Trans. on Circuits and Systems for Video Technology (TCSVT), Vol.29, No.9, pp.2667-2682, Sep. 2019.

[51] Chuanmin Jia, Shiqi Wang, Xinfeng Zhang, Shanshe Wang, Jiaying Liu, and Siwei Ma. "Content-Aware Convolutional Neural Network for In-loop Filtering in High Efficiency Video Coding", IEEE Trans. on Image Processing (TIP), Vol.28, No.7, pp.3343-3356, July 2019.

[52] Wenhan Yang, Jiaying Liu, Shuai Yang, and Zongming Guo. "Scale-Free Single Image Deraining Via Visibility- Enhanced Recurrent Wavelet Learning", IEEE Trans. on Image Processing (TIP), Vol.28, No.6, pp.2948-2961, June 2019.

[53] Wenhan Yang, Sifeng Xia, Jiaying Liu, and Zongming Guo. "Reference-Guided Deep Super-Resolution via Manifold Localized External Compensation", IEEE Trans. on Circuits and Systems for Video

Technology (TCSVT), Vol.29, No.5, pp.1270-1283, May 2019.

[54] Jiaying Liu, Sifeng Xia, Wenhan Yang, Mading Li, and Dong Liu. "One-for-All: Grouped Variation Network Based Fractional Interpolation in Video Coding", IEEE Trans. on Image Processing (TIP), Vol.28, No.5, pp.2140-2151, May 2019.

[55] Xinfeng Zhang, Weisi Lin, Shiqi Wang, Jiaying Liu, Siwei Ma, and Wen Gao. "Fine-Grained Quality Assessment for Compressed Images", IEEE Trans. on Image Processing (TIP), Vol.28, No.3, pp.1163-1175, Mar. 2019.

[56] [50] Shuai Yang, Jiaying Liu, Wenhan Yang, and Zongming Guo. "Context-Aware Text-Based Binary Image Stylization and Synthesis", IEEE Trans. on Image Processing (TIP), Vol.28, No.2, pp.952-964, Feb. 2019.

[57] Jiaying Liu, Wenhan Yang, Shuai Yang, and Zongming Guo. "D3R-Net: Dynamic Routing Residue Recurrent Network for Video Rain Removal", IEEE Trans. on Image Processing (TIP), Vol.28, No.2, pp.699-712, Feb. 2019.

[58] Jiaying Liu, Shuai Yang, Yuming Fang, and Zongming Guo. "Structure-Guided Image Inpainting Using Homography Transformation", IEEE Trans. on Multimedia (TMM), Vol.20, No.12, pp.3252-3265, Dec. 2018.

[59] Shuai Yang, Jiaying Liu, Zhouhui Lian, and Zongming Guo. "Text Effects Transfer via Distribution-Aware Texture Synthesis", Computer Vision and Image Understanding (CVIU), Vol.174, pp.43-56, Sep. 2018.

[60] Yanghao Li, Naiyan Wang, Jianping Shi, Xiaodi Hou, and Jiaying Liu. "Adaptive Batch Normalization for Practical Domain Adaptation", Pattern Recognition (PR), Vol.80, pp.109-117, Aug. 2018.

[61] Jiaying Liu, Wenhan Yang, Xiaoyan Sun, and Wenjun Zeng. "Photo Stylistic Brush: Robust Style Transfer via Superpixel-Based Bipartite Graph", IEEE Trans. on Multimedia (TMM), Vol.20, No.7, pp.1724-1737, July 2018.

[62] Sijie Song, Cuiling Lan, Junliang Xing, Wenjun Zeng, and Jiaying Liu. "Spatio-Temporal Attention-Based LSTM Networks for 3D Action Recognition and Detection", IEEE Trans. on Image Processing (TIP), Vol.27, No.7, pp.3459-3471, July 2018.

[63] Mading Li, Jiaying Liu, Wenhan Yang, Xiaoyan Sun, and Zongming Guo. "Structure-Revealing Low-Light Image Enhancement via Robust Retinex Model", IEEE Trans. on Image Processing (TIP), Vol.27, No.6, pp.2828-2941, June 2018.

[64] Wenhan Yang, Jiaying Liu, Mading Li, and Zongming Guo. "Isophote-Constrained Autoregressive Model with Adaptive Window Extension for Image Interpolation", IEEE Trans. on Circuits and Systems for Video Technology (TCSVT), Vol.28, No.5, pp.1071-1086, May 2018.

[65] Shuai Yang, Jiaying Liu, Yuming Fang, and Zongming Guo. "Joint-Feature Guided Depth Map Super-Resolution with Face Priors", IEEE Trans. on Cybernetics (TCYB), Vol.48, No.1, pp.399-411, Jan. 2018.

[66] Wenhan Yang, Jiashi Feng, Jianchao Yang, Fang Zhao, Jiaying Liu, Zongming Guo, and Shuicheng Yan. "Deep Edge Guided Recurrent Residual Learning for Image Super-Resolution", IEEE Trans. on Image Processing (TIP), Vol.26, No.12, pp.5895-5907, Dec. 2017.

[67] Yuming Fang, Jiebin Yan, Jiaying Liu, Shiqi Wang, Qiaohong Li, and Zongming Guo. "Objective Quality Assessment of Screen Content Images by Uncertainty Weighting", IEEE Trans. on Image Processing (TIP), Vol.26, No.4, pp.2016-2027 Apr. 2017.

[68] Jiaying Liu, Wenhan Yang, Xinfeng Zhang, and Zongming Guo. "Retrieval Compensated Group Structured Sparsity for Image Super-Resolution", IEEE Trans. on Multimedia (TMM), Vol.19, No.2, pp.302-316, Feb. 2017.

[69] Xinfeng Zhang, Ruiqin Xiong, Weisi Lin, Siwei Ma, Jiaying Liu, and Wen Gao. "Video Compression

Artifact Reduction via Spatio-Temporal Multi-Hypothesis Prediction", IEEE Trans. on Image Processing (TIP), Vol.24, No.12, pp.6048 - 6061, Dec. 2015.

[70] Yongqin Zhang, Jiaying Liu, Wenhan Yang, and Zongming Guo. "Image Super-Resolution Based on Structure-Modulated Sparse Representation", IEEE Trans. on Image Processing (TIP), Vol.24, No.9, pp.2797-2810, Sep. 2015.

[71] Mading Li, Jiaying Liu, Jie Ren, and Zongming Guo. "Adaptive General Scale Interpolation Based on Weighted Autoregressive Models", IEEE Trans. on Circuits and Systems for Video Technology (TCSVT). Vol.25, No.2, pp.200-211, Feb. 2015.

[72] Yongjin Cho, Do-Kyoung Kwon, Jiaying Liu, and C.-C. Jay Kuo. "Dependent R/D Modeling Techniques and Joint T-Q Layer Bit Allocation for H.264/SVC", IEEE Trans. on Circuits and Systems for Video Technology (TCSVT), Vol.23, No.6, pp.1003-1015, June 2013.

[73] Jie Ren, Jiaying Liu, and Zongming Guo. "Context-Aware Sparse Decomposition for Image Denoising and Super-Resolution", IEEE Trans. on Image Processing (TIP), Vol.22, No.4, pp.1456-1469, Apr. 2013.

[74] Jun Sun, Yizhou Duan, Jiangtao Li, Jiaying Liu, and Zongming Guo. "Rate-Distortion Analysis of Dead-Zone Plus Uniform Threshold Scalar Quantization and Its Application—Part I: Fundamental Theory", IEEE Trans. on Image Processing (TIP), Vol.22, No.1, pp.202-214, Jan. 2013.

[75] Jun Sun, Yizhou Duan, Jiangtao Li, Jiaying Liu, and Zongming Guo. "Rate-Distortion Analysis of Dead-Zone Plus Uniform Threshold Scalar Quantization and Its Application—Part II: Two-Pass VBR Coding for H.264/AVC", IEEE Trans. on Image Processing (TIP), Vol.22, No.1, pp.215-228, Jan. 2013.

Refereed Conference Proceedings:

[1] Zejia Fan, Jinyi Luo, Wenhan Yang, Zongming Guo, and Jiaying Liu. "Progressive Interactive Diffusion Model for Real-World Stereo Super-Resolution", Accepted by IEEE International Conference on Multimedia & Expo (ICME), Nantes, France, June 2025.

[2] Xiang Gao, Shuai Yang, Jiaying Liu. "PTDiffusion: Free Lunch for Generating Optical Illusion Hidden Pictures using Phase-Transferred Diffusion Model", Accepted by IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), Nashville, US, June 2025.

[3] Yiyang Ma, Xingchao Liu, Xiaokang Chen, Wen Liu, Chengyue Wu, Zhiyu Wu, Zizheng Pan, Zhenda Xie, Haowei Zhang, Xingkai Yu, Liang Zhao, Yisong Wang, Jiaying Liu, Chong Ruan. "JanusFlow: Harmonizing Autoregression and Rectified Flow for Unified Multimodal Understanding and Generation", Accepted by IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), Nashville, US, June 2025.

[4] Xicheng Lan, Wenshuo Gao, Luyao Zhang, Jiaying Liu, and Shuai Yang. "Splice, Focus and Relife: High-Resolution Periodic Pattern Generation", Proc. of IEEE International Symposium on Circuits and Systems (ISCAS), London, UK, May 2025.

[5] Minghao Liu, Wenhan Yang, Jinyi Luo, and Jiaying Liu. "UP-Restorer: When Unrolling Meets Prompts for Unified Image Restoration", Proc. of AAAI Conference on Artificial Intelligence (AAAI), Philadelphia, US, Feb. 2025.

[6] Xiang Gao and Jiaying Liu. "FBSDiff: Plug-and-Play Frequency Band Substitution of Diffusion Features for Highly Controllable Text-Driven Image Translation", Proc. of ACM Multimedia (ACM MM), Melbourne, Australia, Oct. 2024.

[7] Yifan Li, Yuhang Bai, Shuai Yang, and Jiaying Liu. "COCO-LC: Colorfulness Controllable Language-based Colorization", Proc. of ACM Multimedia (ACM MM), Melbourne, Australia, Oct. 2024.

[8] Haowei Kuang, Yiyang Ma, Wenhan Yang, Zongming Guo, and Jiaying Liu. "Consistency Guided

Diffusion Model with Neural Syntax for Perceptual Image Compression", Proc. of ACM Multimedia (ACM MM), Melbourne, Australia, Oct. 2024.

[9] Lehong Wu, Lilang Lin, Jiahang Zhang, Yiyang Ma, and Jiaying Liu. "MacDiff: Unified Skeleton Modeling with Masked Conditional Diffusion", Proc. of European Conference on Computer Vision (ECCV), Milano, Italy, Sep. 2024.

[10] Lilang Lin, Lehong Wu, Jiahang Zhang, and Jiaying Liu. "Idempotent Unsupervised Representation Learning for Skeleton-Based Action Recognition", Proc. of European Conference on Computer Vision (ECCV), Milano, Italy, Sep. 2024.

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GRANTS

Role and Co-Investigators	Title	Agency	Grant Total	Grant Period
PI	Controllable and Customized Video Generation and Editing	MSRA Collaborative Research (MSRA-CR)	20, 0000 CNY	2025/06—2026/06
Co-PI	Research on Key Technologies for Efficient Feature Data Encoding and Agile Perception in Vehicle-Road-Cloud Integration	Beijing Municipal Science and Technology Program "Unveiling and Commanding" Project	150, 0000 CNY	2024.09—2025.08
Co-PI	Peking University and Zhejiang Haiyin Digital Technology Co., Ltd. Jointly Establish the 'PKU-Haiyin Joint Laboratory for Digital Textile Printing Technology	Peking University–Haiyin Joint Laboratory Project"	160, 0000 CNY	2024.04—2027.04
Co-PI	Video Enhancement and Colorization Methods for Classic Films	National Natural Science Foundation of China (NSFC) Key Program	87, 4000 CNY	2024/01—2028/12
PI	Computationally Efficient Low Light Image Enhancement	Lenovo	60, 0000 CNY	2024/05—2024/12
PI	Research on Video Reconstruction and Analytics Under Complex Conditions Towards Multiple Vision Tasks	National Natural Science Foundation of China (NSFC)	69, 4000 CNY	2022/01—2025/12
PI	Research on Semantic-Based Image Encoding and Decoding Algorithms	Huawei-Peking University Intelligent Multimedia Technology Cooperation	100, 0000 CNY	2021/10—2020/11
PI	Intelligent Visual Enhancement Computing	Peking University Fundamental Research Project in 2020	100, 0000 CNY	2020/01—2021/12
PI	Research on Stylization Technologies in Computer Vision	BIGO Technology PTE. LTD	60, 0000 CNY	2020/06—2021/05
PI	Research and Standardization Exploration of Intelligent Image/Video Coding Technology	Huawei-Peking University Intelligent Multimedia Technology Cooperation	105, 0000 CNY	2020/06—2019/07
PI	Research on Human Action Analysis and Understanding Based on Multi-Model Learning	Beijing Natural Science Foundation (BJNSF)	20, 0000 CNY	2019/01—2021/12
PI	Intelligent Image	Beijing Natural Science	30, 0000 CNY	2018/12—

	Enhancement via Deep Prior Model	Foundation (BJNSF)-Haidian Innovation Joint Program		2020/12
PI	Research on Joint Video Reconstruction and Analytics Under Severe Conditions	National Natural Science Foundation of China (NSFC)	72, 4000 CNY	2018/01—2021/12
Key Member	Extraterrestrial Detection Unmanned System Autonomous Intelligent Precise Perception and Control	National Key Research and Development Program of China	35, 0000 CNY	2019/12—2022/12
PI	Research on Image/Video Enhancement and Stylization Technology	ByteDance Ltd.	40, 0000 CNY	2019/01—2019/10
PI	Intelligent Medical Aide via Multi-Modal Video/Image Analytics	MSRA Collaborative Research (MSRA-CR)	20, 0000 CNY	2019/04—2020/04
PI	Deep Learning Based Video Analytics and Understanding	CCF-Tencent Rhino Bird Scientific Research Program	12, 0000 CNY	2017/10—2018/12
PI	Remote Health and Medical Aide via Skeleton-Based Action Forecast and Detection	MSRA Collaborative Research (MSRA-CR)	20, 0000 CNY	2017/01—2017/12
Co-PI	Image Processing and Data Management of Flaw Detection CR System	Beijing Collaborative Innovation Research Institute	80, 0000 CNY	2016/03—2018/02
PI	Research and Development of Vision-Based Intelligent Healthcare Systems	iMotion Co., Ltd.	15, 0000 CNY	2016/05—2016/08
PI	Research on Mobile Video Enhancement	Kuaishou Technology	30, 0000 CNY	2017/09—2017/11
PI	Image Representation, Sparse Coding and Reconstruction Based on Sparse Representation	National Natural Science Foundation of China (NSFC)	80, 0000 CNY	2015/01—2018/12
PI	Joint Project PKU and Beijing Qianoak Netscape Technology	Beijing Qianoak Netscape Technology Development Co., Ltd.	12, 0000 CNY	2015/01—2015/12
PI	Research on Image Modeling and Reconstruction Based on Sparse Representation	Beijing Natural Science Foundation (BJNSF)	18, 0000 CNY	2014/01—2016/12
Key member	Key Technology of Information Consumption	National High Technology Research and	32, 0000 CNY	2014/01—2016/12

	Service and Application Demonstration Based on Media Bid Data	Development Program of China (863 Program)		
PI	Research on Scalable Video Coding and Reconstruction	Research Fund for Doctoral Program of Higher Education of China	4, 0000 CNY	2012/01—2014/12
PI	Research on Omni-Scalable Video Coding and Super-Resolution Reconstruction	National Natural Science Foundation of China (NSFC)	25, 0000 CNY	2012/01—2014/12

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[2] Jiaying Liu, Shuai Yang, Zhouhui Lian, Zongming Guo. A method and system for artistic text generation, Chinese Patent ZL201810078035.5, Granted: 2020.11.3.

[3] Jiaying Liu, Wenhan Yang, Chen Wei, Shuai Yang, Zongming Guo. A method and device for video deraining, Chinese Patent ZL201810541578.6, Granted: 2020.12.4.

[4] Jiaying Liu, Shuai Yang, Wenjing Wang, Zongming Guo. A method and system for stylization and destylization based artistic text editing, Chinese Patent ZL201811487971.8, Granted: 2021.1.19.

[5] Linyu Duan, Jiaying Liu, Wenhan Yang, Yan Bai, Wen Gao. A method and device for collaborative compression based on feedback optimization, Chinese Patent ZL202010020628.3, Granted: 2021.5.4.

[6] Jiaying Liu, Kundai Du, Wenhan Yang, Zongming Guo. A method and device for visual refinement, Chinese Patent ZL201810178131.7, Granted: 2021.8.17.

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[9] Jiaying Liu, Sifeng Xia, Yueye Hu, Zongming Guo. A method for fractional interpolation of video coding, Chinese Patent ZL201910184099.8, Granted: 2022.1.21.

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[11] Jiaying Liu, Wenhan Yang, Haofeng Huang, Dezhao Wang, Linyu Duan. A method for collaborative image coding in low bit rates, Chinese Patent ZL202111026165.2, Granted: 2022.7.19.

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[13] Jiaying Liu, Chen Wei, Wenjing Wang, Wenhan Yang, Zongming Guo. A method for low-light enhancement based on deep retinex decomposition, Chinese Patent ZL201810876683.5, Granted: 2022.7.22.

[14] Jiaying Liu, Yuzhang Hu, Wenjing Wang, Shuai Yang, Zongming Guo. A method for intelligent text style transfer, Chinese Patent ZL201910440039.8, Granted: 2022.7.26.

[15] Jiaying Liu, Linyu Duan, Yueyu Hu, Sifeng Xia, Wenhan Yang. A method and system for collaborative video coding, Chinese Patent ZL2019114083290, Granted: 2022.7.29.

[16] Yanghao Li, Sijie Song, Jiaying Liu, Tingting Liu, Tingting Huang, Lin Ma, Wei Liu. A method and device for video action recognition, Chinese Patent ZL201810861147.8, Granted: 2022.9.9.

[17] Jiaying Liu, Dejia Xu, Wenhan Yang, Minhao Fan. A method and network for low-light face detection based on multi-feature fusion, Chinese Patent ZL201910813l847.4, Granted: 2022.9.15.

[18] Jiaying Liu, Yueye Hu, Haofeng Huang, Wenhan Yang, Zongming Guo. A method and device for deep image compression, Chinese Patent ZL202010084834.0, Granted: 2022.10.19.

[19] Jiaying Liu, Dezhao Wang, Sifeng Xia, Wenhan Yang, Yueye Hu, Zongming Guo. A method for deep in-loop filtering, Chinese Patent ZL201910450808.2, Granted: 2022.12.23.

[20] Jiaying Liu, Dezhao Wang, Sifeng Xia, Wenhan Yang, Zongming Guo. A method and device for in-loop filtering based on multiple reference frames, Chinese Patent ZL202010042012.6, Granted: 2023.1.13.

[21] Jiaying Liu, Shuai Yang, Wenhan Yang, Zongming Guo. A method and system for poster design, Chinese Patent ZL201811068309.9, Granted: 2023.2.23.

[22] Jiaying Liu, Yueye Hu, Jin Wang. A method and device for image codec, Chinese Patent ZL202011353900.6, Granted: 2023.3.10.

[23] Jiaying Liu, Yuzhang Hu, Wenhan Yang, Zongming Guo. A method for sensitivity-aware bit allocation for intermediate deep feature compression, Chinese Patent ZL202011090817.4, Granted: 2023.3.31.

[24] Jiaying Liu, Yuzhang Hu, Wenhan Yang, Zongming Guo. A method and device for memory-augmented video detraining, Chinese Patent ZL202110034912.0, Granted: 2023.4.7.

[25] Jiaying Liu, Yueye Hu, Haofeng Huang, Wenhan Yang, Linyu Duan. A method for deep feature compression, Chinese Patent ZL202110660867.X, Granted: 2023.7.16.

[26] Jiaying Liu, Wenhan Yang, Yuzhang Hu, Zongming Guo. A method and device for semi-supervised image deraining, Chinese Patent ZL202110088761.7, Granted: 2023.10.17.

[27] Jiaying Liu, Wenjing Wang, Lilang Lin, Zejia Fan, Zongming Guo. A method and system for extraterrestrial detection image recognition based on contrastive learning, Chinese Patent ZL202111010548.0, Granted: 2023.11.7.

[28] Jiaying Liu, Wenjing Wang, Jizheng Xu, Li Zhang, Yue Wang, Zongming Guo. A neural style transfer method and system based on feature adjustment, Chinese Patent ZL202111010548.0, Granted: 2024.3.22.

[29] Jiaying Liu, Shujia Li, Dezhao Wang, Haofeng Huang, Zongming Guo. Vision-Based Self-Attention Network for Video Block-Level Rate-Distortion Optimization Method and System, Chinese Patent ZL202210735183.6, Granted: 2024.6.28.

[30] Jiaying Liu, Lilang Lin, Sijie Song, Zongming Guo. A Multi-Task Self-Supervised Learning-Based Method for Action Recognition and Electronic Device, Chinese Patent ZL202011074346.8, Granted: 2024.10.25

[31] Jiaying Liu, Haowei Kuang, Shuhong Zheng, Haofeng Huang, Zongming Guo. A Low-Light Image Enhancement Method Using Long-Exposure Compensation. Chinese Patent ZL 202210651629.7, Granted: 2025.4.17

STANDRARD

- **Vice Chair**, IEEE 1857.11 of IEEE 1857 WG under Data Compression Standards Committee, since 2021
- 8 Proposals adopted by IEEE 1857.11 Standard

[1] Haowei Kuang, Zejia Fan, and Jiaying Liu, "CE12: Blocking Artifacts Alleviating Technology for iWave Filtering Result", FVC-M444, Dec. 2023.

[2] Zejia Fan, Haowei Kuang, Yiyang Ma, Jiahang Zhang, Chuanmin Jia and Jiaying Liu, "CE1: Lightweight optimization for iWave filtering technology", FVC-M433, Nov. 2023.

[3] Haowei Kuang, Yiheng Jiang, Xiongzhuang Liang, Li Li, Jiaying Liu and Dong Liu, "CE4: Entropy coding acceleration for iWave on lossless mode", FVC-M424, Sep. 2023.

[4] Haowei Kuang, Zejia Fan, Yiyang Ma, Jiahang Zhang, Chuanmin Jia and Jiaying Liu, "CE 12: New design codec process with slice partition for iWave", FVC-M413, Aug. 2023.

[5] Shujia Li, Zejia Fan, Dezhao Wang, Chuanmin Jia and Jiaying Liu, "Core Experiment: Filtering Technologies", FVC-M374, Mar. 2023.

[6] Dezhao Wang, Yueyu Hu, and Jiaying Liu, "Dual Hyper-prior Model for NIC", FVC-M285, Mar. 2021.

[7] Yuzhang Hu, Yueyu Hu and Jiaying Liu, "Integration of LibTorch in DLVC", FVC-M244, June, 2019.

[8] Yueyu Hu, Yuzhang Hu, Sifeng Xia, and Jiaying Liu, "Porting DLVC to Linux and Docker", FVC-M240, Mar. 2019.

SERVICES

- ACM ICMR Steering Committee Member, 2021 – 2025
- IEEE ICME Steering Committee Member, IEEE CASS-MSA TC Representor, 2021 – 2024
- IEEE CASS-VSPC / MSA / EOT, Technical Committee Member
- IEEE SPS Membership Services Committee, Member
- APSIPA IVM / FPC, Technical Committee Member
- Elsevier JVCI Award Committee, 2019 / 2020
- APSIPA, Distinguished Lecturer, 2016 – 2017

- *Associate Editor*, IEEE Trans. on Circuits Systems for Video Technology, since 2021
- *Associate Editor*, IEEE Trans. on Image Processing, since 2019
- *Associate Editor*, Journal of Visual Communication and Image Representation, since 2019
- *Associate Editor*, APSIPA Trans. on Signal and Information Processing, since 2022
- *Associate Editor*, IEEE Multimedia Magazine, since 2024

- *Lead Guest Editor,* APSIPA Transactions on Signal and Information Processing Special Issue on "Emerging AI Technologies for Smart Infrastructure", 2023
- *Guest Editor*, EURASIP Journal on Image and Video Processing Special Issue on "Visual Coding for Humans and Machines", 2023
- *Guest Editor*, Journal of Visual Communication and Image Representation Special Issue on "Multi-Modality Human Activity Understanding", 2021
- *Guest Editor*, ACM Trans. on Multimedia Computing Communications and Applications Special Issue on "Explainable AI on Multimedia Computing", 2020

- **Reviewer** for
- *Nature Machine Intelligence*
- *IEEE Trans. on Pattern Analysis and Machine Intelligence*
- *IEEE Trans. on Circuits and Systems for Video Technology*
- *IEEE Trans. on Image Processing*
- *IEEE Trans. on Knowledge and Data Engineering*
- *IEEE Trans. on Multimedia*
- *IEEE Trans. on Visualization and Computer Graphics*
- *IEEE Trans. on Cybernetics*
- *IEEE Trans. on Broadcasting*
- *Pattern Recognition*
- *IEEE Multimedia*
- *IEEE Journal of Selected Topics in Signal Processing*
- *IEEE Signal Processing Letter*

Conference Organizing Committees

- **Technical Program Chair**, ACM Multimedia Asia (ACM MM Asia), in Kuala Lumpur, Malaysia, 2025
- **Workshop Chair**, IEEE International Conference on Multimedia & Expo (ICME), in Nantes, France, 2025
- **Area Chair**, International Conference on Computer Vision (ICCV), in Honolulu, Hawaii, 2025
- **Area Chair**, ACM International Conference on Multimedia (ACM MM), in Dublin, Ireland, 2025
- **Area Chair**, Computer Vision and Pattern Recognition (CVPR), in Nashville, TN, US, 2025
- **General Chair**, ACM Multimedia Asia (ACM MM Asia), in New Zealand, 2024
- **Workshop Chair & Area Chair,** ACM Multimedia (ACM MM), in Melbourne, Australia, 2024
- **Grand Challenge Chair**, IEEE International Conference on Multimedia & Expo (ICME), in Niagara Falls, Canada, 2024
- **Area Chair**, European Conference on Computer Vision (ECCV), in Milano, Italy, 2024
- **Technical Program Chair**, ACM Multimedia Asia (ACM MM Asia), in Tainan, Taiwan, 2023
- **Grand Challenges Chair**, IEEE International Conference on Multimedia & Expo (ICME), in Brisbane, Australia, 2023
- **Best Paper Award Committee**, ACM Multimedia (ACM MM), in Lisbon, Portugal, 2022
- **Panel Chair**, IEEE International Conference on Multimedia & Expo (ICME), in Taipei, Taiwan, 2022
- **Registration Chair**, IEEE International Conference on Visual Communications and Image Processing (VCIP), in Suzhou, China, 2022
- **Workshop Chair**, IEEE International Conference on Multimedia Information Processing and Retrieval (MIPR), Virtually, 2022
- **Area Chair**, Asian Conference on Computer Vision (ACCV), in Macau SAR, China, 2022 (**Outstanding Area Chair Award**)
- **Technical Program Chair**, IEEE International Conference on Multimedia & Expo (ICME), in Shenzhen, Guangdong, China, 2021
- **Technical Program Chair**, ACM International Conference on Multimedia Retrieval (ICMR), in Taipei, Taiwan, 2021
- **Grand Challenges Chair**, IEEE International Workshop on Multimedia Signal Processing (MMSP), in Tampere, Finland, 2021
- **Area Chair**, Computer Vision and Pattern Recognition (CVPR), in Nashville, TN, US, 2021
- **Area Chair**, European Conference on Computer Vision (ECCV), in Glasgow, Scotland, UK, 2020
- **Publicity Chair**, IEEE International Conference on Multimedia & Expo (ICME), in London, UK, 2020
- **Publicity Chair**, IEEE International Conference on Multimedia Information Processing and Retrieval (MIPR), in Shenzhen, China, 2020
- **Grand Challenge Chair**, IEEE International Workshop on Multimedia Signal Processing (MMSP), in Tampere, Finland, 2020
- **Best Paper Award Committee & Special Session Co-organizer**, Special Session on "Advanced Image/Video Coding for Machine Vision", IEEE International Conference on Image Processing (ICIP), in United Arab Emirates, 2020
- **Technical Program Chair**, IEEE International Conference on Visual Communications and Image Processing (VCIP), in Sydney, Australia, 2019
- **Publicity Chair**, IEEE International Conference on Image Processing (ICIP), in Taipei, Taiwan, 2019
- **Grand Challenge Chair**, IEEE International Conference on Multimedia & Expo (ICME), in Shanghai,

China, 2019

- **Workshop Organizer**, CVPRW UG2+ Workshop on "Bridging the Gap between Computational Photography and Visual Recognition", Long Beach, California, US, June 2019
- **Workshop Organizer**, ICCV 2019 Workshop on "The International Workshop and Challenge on Real-World Recognition from Low-Quality Images and Videos", Seoul, Korea, Oct. 2019.
- **Workshop Chair**, IEEE International Conference on Multimedia Information Processing and Retrieval (MIPR), in San Jose, CA, US, 2019
- **Publicity Chair & Area Chair**, IEEE International Conference on Visual Communications and Image Processing (VCIP), in Taichung, Taiwan, 2018
- **Area Chair & Special Session Co-organizer**, Special Session on "Human Activity Analytics: Benchmark, Algorithms, and Applications", IEEE International Conference on Multimedia & Expo (ICME), in San Diego, CA, US, 2018
- **Finance Chair**, IEEE International Conference on Multimedia Big Data (BigMM), in Xi'an, Shaanxi, China, 2018
- **Special Session Co-organizer**, Special Session on "Learning-based Multimedia Restoration and Enhancement", Pacific-Rim Conference on Multimedia (PCM), in Hefei, Anhui, China, 2018
- **Registration Chair**, IEEE International Conference on Visual Communications and Image Processing (VCIP), St. Petersburg, FL, US, 2017
- **Workshop Co-organizer**, Workshop on "Large Scale 3D Human Activity Analysis Challenge in Depth Videos", IEEE International Conference on Multimedia & Expo (ICME), Hong Kong, China, 2017
- **Special Session Co-organizer**, Special Session on "Advanced Multimedia Processing and Compression", IEEE International Conference on Visual Communications and Image Processing (VCIP), Chengdu, Sichuan, China, 2016
- **Special Session Co-organizer**, Special Session on "Advanced Video Processing, Assessment and Analysis", APSIPA Annual Summit and Conference (ASC), Jeju, Korea, 2016
- **Special Session Co-organizer**, Special Session on "Image Sparse Representation and Its Applications", IEEE International Conference on Visual Communications and Image Processing (VCIP), Singapore, 2015
- **Special Session Co-organizer**, Special Session on "Image Restoration via Low-Rank Approach and Transform Domain", APSIPA Annual Summit and Conference (ASC), Hong Kong, China, 2015

TEACHING

Undergraduates Courses:
- Practice on Programming C++, EECS 04831750
  - PKU EECS & YuanPei School, Spring semester, 2011-2024
- Computational Visual Art and Aesthetics, EECS 04852240
  - PKU, Spring semester, 2023 / 2024
- Introduction of Artificial Intelligence, EECS 04834041
  - PKU EECS, Spring semester, 2019-2022
- Design and Analysis of Algorithms, EECS 04832580
  - PKU EECS, Spring semester, 2018 / 2019

Graduates Courses:
- Computational Visual Art and Aesthetics, EECS 10600011
  - PKU AI School, Autumn semester, 2022-2024

MOOC (Massive Open Online Courses):

- Programming Practice and Algorithms, *MOOC Specialization at Coursera*
  - First Chinese MOOC specialization in Computer Science
  - More than 170,000 students enrolled, July 2015 — Present
- Practice on Programming, **MOOC Course at Coursera**
  - 20438 students enrolled, Spring Semester, 2014
- C＋＋ Programming, **MOOC Course at edX**
  - 3198 students enrolled, Feb. 2015
- Fundamental Algorithm Design, **MOOC course at edX**
  - 2770 students enrolled, Apr. 2015
- Practice on Programming, **MOOC Course at Chinese MOOC**
  - 1389 students enrolled, May, 2015

STUDENT SUPREVISED

[Current Students]

- Lilang Lin (Ph.D. Candidate, Sep. 2021 –)
- Zejia Fan (Ph.D. Candidate, Co-supervised with Zongming Guo, Sep. 2021 –)
- Haofeng Huang (Ph.D. Candidate, Co-supervised with Ling-Yu Duan, Sep. 2021 –)
- Luyao Zhang (Ph.D. student, Sep. 2022 –)
- Jiahang Zhang (Ph.D. student, Sep. 2023 –)
- Haowei Kuang (Ph.D. student, Co-supervised with Zongming Guo, Sep. 2023 –)
- Minghao Liu (Ph.D. student, Sep. 2024 –)
- Guo Tang (Ph.D. student, Sep. 2024 –)

[Post-doc]

- Dr. Xiang Gao (2023 – 2025)
  Ph.D. from University of Chinese Academy of Sciences (UCAS)
- Dr. Yongqin Zhang (Current: Professor at Northwest University, 2012-2014)
  Ph.D. from Huazhong University of Science and Technology (HUST)

[Graduates] PhD Students: 6; Master Students: 9.

- Wenjing Wang, Ph.D. 2019 – 2024, **MSRA Fellowship/National Scholarship**, (Current: Scientist, Tencent)
- Sijie Song, PhD, 2016-2021, **Excellent Doctoral Dissertation Award of Beijing and PKU**
  Co-supervised with Zongming Guo, (Current: Scientist, Apple)
- Shuai Yang, PhD, 2015-2020, **Excellent Doctoral Dissertation Award of CSIG and PKU**
  Co-supervised with Zongming Guo, (Current: Research Assistant Professor, Nanyang Technological University, Singapore)
- Wenhan Yang, PhD, 2013-2018, **Excellent Doctoral Dissertation Award of PKU**
  Co-supervised with Zongming Guo, (Current: Associate Researcher, Pengcheng National Lab)
- Mading Li, PhD, 2013-2018
  Co-supervised with Zongming Guo, (Current: Scientist, Kuaishou Ltd.)
- Jie Ren, PhD, 2009-2013, **Excellent Doctoral Dissertation Award of PKU**
  Co-supervised with Zongming Guo, (Current: CTO, Yuanxiang Ltd.)

- Yiyang Ma, Master, 2022 – 2025
  (Current: Software Engineer, DeepSeek)
- Dezhao Wang, Master, 2020-2023
  (Current: Software Engineer, Ubi Quant)
- Yuzhang Hu, Master, 2020-2023
  Co-supervised with Zongming Guo, (Current: Software Engineer, Alibaba Cloud)
- Yueyu Hu, Master, 2019-2021
  (Current: PhD, New York University)
- Sifeng Xia, Master, 2018-2020, **National Scholarship**
  (Current: Software Engineer, Tencent)
- Yanghao Li, Master, 2015-2018, **National Scholarship**
  (Current: Engineer, Facebook FAIR)
- Shihong Deng, Master, 2015-2017
  (Current: Engineer, ByteDance)
- Saboya Yang, Master, 2014-2017, **National Scholarship**
  (Current: Manager, ByteDance)
- Wei Bai, Master, 2012-2015
  (Current: Senior Researcher, Huawei Technologies)

[Undergraduates Interns]

- Yifan Li, Intern, PKU DS-2021, Current: Peking University
- Jiaxuan Xie, Intern, PKU CS-2021, Current: Harvard University
- Shaofan Sun, Intern, PKU CS-2021, Current: Peking University
- Rundong Luo, Intern, PKU Turing Class-2020, Current: Cornel University
- Minghao Liu, Intern, PKU Turing Class-2020, Current: Peking University
- Guo Tang, Intern, PKU Turing Class-2020, Current: Peking University
- Xinhao Wang, Intern, PKU Turing Class-2018, Current: High-Flyer
- Shuhong Zheng, Intern, PKU CS-2018, Current: University of Illinois Urbana-Champaign
- Shixing Yu, Intern, PKU CS-2017, Current: The University of Texas at Austin
- Yu Han, Intern, PKU CS-2017, Current: Carnegie Mellon University
- Hao Liang, Intern, PKU CS-2017, Current: Chinese Academy of Science
- Yanfeng Yang, Intern, PKU CS-2017, Current: Peking University
- Minhao Fan, Intern, PKU CS-2016, Current: Rice University
- Keqiang Yan, Intern, PKU CS-2016, Current: Texas A&M University
- Xiao Wu, Intern, PKU Turing Class-2016, Current: ETH Zurich
- Kunchangtai Liang, Intern, PKU CS-2016, Current: The University of Edinburgh
- Dejia Xu, Intern, PKU CS-2017, Current: The University of Texas at Austin
- Rui Qian, Intern, PKU CS-2015, Current: Cornell University
- Chen Wei, Intern, PKU CS-2015, Current: Johns Hopkins University
- Xutong Ren, Intern, PKU CS-2015, Current: Carnegie Mellon University
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- Chunhui Liu, Intern, PKU CS-2014, Current: Carnegie Mellon University
- Kuntai Du, Intern, PKU CS-2015, Current: University of Chicago
- Luxin Zhang, Intern, PKU CS-2014, Current: Carnegie Mellon University
- Hao Wang, Intern, PKU CS-2013, Current: Stanford University

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- Qikun Guo, Intern, PKU High school, Current: Brown University
- Qiaochu Li, Intern, PKU CS-2010, Current: Carnegie Mellon University
- Mengyan Wang, Intern, PKU CS-2009, Current: Carnegie Mellon University
- Zhendong Li, Intern, PKU CS-2009, Current: Singapore Airlines
- Yue Zhuo, Intern, Current: Facebook