Mengyuan Liu

Contact

Peking University

Shenzhen Graduate School

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Current

Apr 2023 – Present

Peking University Shenzhen Graduate School

Researcher, Assistant Professor, Ph.D. Supervisor

Previous

Dec 2020 – Mar 2023

Sun Yat-sen University

Associate Professor

Sep 2018 – Nov 2020

Tencent (Shenzhen)

Senior Researcher

Sep 2017 – Sep 2018

Nanyang Technological University

Research Fellow

Education

Sep 2012 – Jul 2017

Peking University

Ph.D. in Computer Application Technology

Sep 2008 – Jul 2012

Nankai University

B.Sc. in Intelligent Science and Technology

Interests

Human Action Analysis

Hand Gesture Analysis

Micro-Expression Analysis

Human-Robot Interaction

Robot Learning

Services

Associate Editor for Pattern Recognition (IF: 7.6)

Youth Associate Editor for Science Partner Journal Cyborg and Bionic Systems (IF: 18.1)

Youth Associate Editor for CAAI Transactions on Intelligence Technology (IF: 7.3)

Session Co-Chair for IROS / ICME

Reviewer for TPAMI / IJCV / TRO / PR / TIP / TMM / TNNLS

Reviewer for CVPR / ECCV / ICCV / NeurIPS / ICLR / AAAI / IJCAI

Grants

PI: Research on Key Technologies of General Human Action Understanding Models for Complex Human-Computer Interaction, National Natural Science Foundation of China (General Program), No. 62473007, Jan. 2025 – Dec. 2028, ¥500,000.

PI: 3D Complex Human Behavior Recognition for Natural Human-Computer Interaction, National Natural Science Foundation of China (Young Scientists Fund, Category C), No. 62203476, Jan. 2023 – Dec. 2025, ¥300,000.

PI: Development and Demonstration of Lightweight Intelligent Dual-Arm Nursing Robot System (Sub-project: Perception and Scene Understanding in Elderly Care Environments), Ministry of Science and Technology (National Key R&D Program), No. 2024YFB4709802, Jan. 2025 – Dec. 2027, ¥1,650,000.

PI: Fundamental Theory and Key Technologies of Adaptive Intelligent Agents in Complex Scenes (Sub-project: Scene Modeling and Virtual-Real Interaction), Department of Science and Technology of Guangdong Province (Next-Generation AI Flagship Project), No. 2024B0101050002, Feb. 2025 – Feb. 2028, ¥2,080,000.

PI: 3D Complex Human Behavior Recognition Based on Spatiotemporal Semantic Representation of Joint Point Clouds, Guangdong Basic and Applied Basic Research Foundation (General Program), No. 2024A1515012089, Jan. 2024 – Dec. 2026, ¥150,000.

PI: 3D Human Motion Analysis for Efficient Human-Computer Interaction, Shenzhen Science and Technology Innovation Commission (Excellent Young Researcher Program), No. RCYX20231211090248064, Jun. 2024 – Jun. 2027, ¥2,000,000.

PI: Human Behavior Recognition in Incomplete-Modality Smart Surveillance Scenarios, Shenzhen Science and Technology Innovation Commission (Basic Research, General Program), No. JCYJ20230807120801002, Nov. 2023 – Nov. 2026, ¥300,000.

Awards

Best Paper Award, Chinese Intelligent Automation Conference, 2025
Best Student Paper, Asian Conference on Artificial Intelligence Technology, 2025
Best Reviewer, Science Partner Journal Cyborg and Bionic Systems, 2025
First Prize, Guangdong Province Natural Science Award, 2024
First Prize, ICME Grand Challenge, 2024
First Prize, Shenzhen Natural Science Award, 2023
Outstanding Science and Technology Worker of Shenzhen, 2021
First Prize, ACM Multimedia Grand Challenge, 2021

Selected Journal Publications

Wenhao Li, Mengyuan Liu, Hong Liu, Pichao Wang, Shijian Lu, Nicu Sebe. H^2OT: Hierarchical Hourglass Tokenizer for Efficient Video Pose Transformers. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2025.

Jialun Cai, Mengyuan Liu, Hong Liu, Wenhao Li, Shuheng Zhou. NanoHTNet: Nano Human Topology Network for Efficient 3D Human Pose Estimation. IEEE Transactions on Image Processing (TIP), 2025.

Xinshun Wang, Wanying Zhang, Can Wang, Yuan Gao, Mengyuan Liu. Dynamic Dense Graph Convolutional Network for Skeleton-Based Human Motion Prediction. IEEE Transactions on Image Processing (TIP), 2024.

Yi Zhang, Xinhua Xu, Youjun Zhao, Yuhang Wen, Zixuan Tang, Mengyuan Liu. Facial Prior Guided Micro-Expression Generation. IEEE Transactions on Image Processing (TIP), 2024.

Wenhao Li, Mengyuan Liu, Hong Liu, Bin Ren, Xia Li, Yingxuan You, Nicu Sebe. HYRE: Hybrid regressor for 3D human pose and shape estimation. IEEE Transactions on Image Processing (TIP), 2024.

Fanyang Meng, Hong Liu, Yongsheng Liang, Juanhui Tu, Mengyuan Liu. Sample Fusion Network: An End-to-End Data Augmentation Network for Skeleton-Based Human Action Recognition. IEEE Transactions on Image Processing (TIP), 2019.

Guoquan Wang, Mengyuan Liu, Hong Liu, Jinyan Zhang, Peini Guo, Ruijia Fan, Siyu Chen. Frequency-Aware Self-Supervised Group Activity Recognition with Skeleton Sequences. Pattern Recognition (PR), 2025.

Wenhao Li, Mengyuan Liu, Hong Liu, Tianyu Guo, Runwei Ding, Hao Tang. GraphMLP: A Graph MLP-Like Architecture for 3D Human Pose Estimation. Pattern Recognition (PR), 2024.

Tianyu Guo, Mengyuan Liu, Hong Liu, Guoquan Wang, Wenhao Li. Improving Self-Supervised Action Recognition from Extremely Augmented Skeleton Sequences. Pattern Recognition (PR), 2024.

Linhui Dai, Hong Liu, Pinhao Song, Mengyuan Liu. A Gated Cross-domain Collaborative Network for Underwater Object Detection. Pattern Recognition (PR), 2024.

Guoquan Wang, Mengyuan Liu, Hong Liu, Peini Guo, Ti Wang, Jingwen Guo, Ruijia Fan. Augmented Skeleton Sequences with Hypergraph Network for Self-Supervised Group Activity Recognition. Pattern Recognition (PR), 2024.

Wei Shi, Hong Liu, Mengyuan Liu. Image-to-Video Person Re-Identification Using Three-Dimensional Semantic Appearance Alignment and Cross-Modal Interactive Learning. Pattern Recognition (PR), 2022.

Mengyuan Liu, Hong Liu, Chen Chen. Enhanced Skeleton Visualization for View Invariant Human Action Recognition. Pattern Recognition (PR), 2017. 943 citations

Yuhang Wen, Mengyuan Liu, Zixuan Tang, Junsong Yuan, Sirui Li, Beichen Ding. STAR: Skeletal Token Alignment and Rearrangement for Interaction Recognition. IEEE Transactions on Multimedia (TMM), 2025.

Ti Wang, Mengyuan Liu, Hong Liu, Bin Ren, Yingxuan You, Wenhao Li, Nicu Sebe, Xia Li. Uncertainty-Aware Testing-Time Optimization for 3D Human Pose Estimation. IEEE Transactions on Multimedia (TMM), 2025.

Hongbo Kang, Yong Wang, Mengyuan Liu, Doudou Wu, Peng Liu, Wenming Yang. Double-Chain Constraints for 3D Human Pose Estimation in Images and Videos. IEEE Transactions on Multimedia (TMM), 2025.

Jinfu Liu, Xinshun Wang, Can Wang, Yuan Gao, Mengyuan Liu. Temporal Decoupling Graph Convolutional Network for Skeleton-Based Gesture Recognition. IEEE Transactions on Multimedia (TMM), 2024. 131 citations

Tao Wang, Mengyuan Liu, Hong Liu, Wenhao Li, Miaoju Ban, Tianyu Guo, Yidi Li. Feature Completion Transformer for Occluded Person Re-identification. IEEE Transactions on Multimedia (TMM), 2024.

Jianbing Wu, Hong Liu, Wei Shi, Mengyuan Liu, Wenhao Li. Style-Agnostic Representation Learning for Visible-Infrared Person Re-identification. IEEE Transactions on Multimedia (TMM), 2023.

Wenhao Li, Hong Liu, Runwei Ding, Mengyuan Liu, Pichao Wang, Wenming Yang. Exploiting Temporal Contexts with Strided Transformer for 3D Human Pose Estimation. IEEE Transactions on Multimedia (TMM), 2022. 319 citations

Mengyuan Liu, Hong Liu, Chen Chen. Robust 3D Action Recognition through Sampling Local Appearances and Global Distributions. IEEE Transactions on Multimedia (TMM), 2018.

Wanying Zhang, Mengyuan Liu, Xinshun Wang, Shen Zhao, Can Wang. CHAMP: A Large-Scale Dataset for Skeleton-based Composite HumAn Motion Prediction. IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), 2024.

Sheng Yan, Mengyuan Liu, Yong Wang, Yang Liu, Chen Chen, Hong Liu. MLP: Motion Label Prior for Temporal Sentence Localization in Untrimmed 3D Human Motions. IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), 2024.

Mengyuan Liu, Hong Liu, Chen Chen. 3D Action Recognition Using Multi-Scale Energy-Based Global Ternary Image. IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), 2018.

Yang Liu, Hong Liu, Huaqiu Wang, Fanyang Meng, Mengyuan Liu. BCAN: Bidirectional Correct Attention Network for Cross-Modal Retrieval. IEEE Transactions on Neural Networks and Learning Systems (TNNLS), 2023.

Selected Conference Publications

Peiming Li, Ziyi Wang, Yulin Yuan, Hong Liu, Xiangming Meng, Junsong Yuan, Mengyuan Liu. UST-SSM: Unified Spatio-Temporal State Space Models for Point Cloud Video Modeling. International Conference on Computer Vision (ICCV), 2025.

Ziyi Wang, Peiming Li, Hong Liu, Zhichao Deng, Can Wang, Jun Liu, Junsong Yuan, Mengyuan Liu. Recognizing Actions from Robotic View for Natural Human-Robot Interaction. International Conference on Computer Vision (ICCV), 2025.

Lijun Li, Linrui Tian, Xindi Zhang, Qi Wang, Bang Zhang, Liefeng Bo, Mengyuan Liu, Chen Chen. Renderih: A large-Scale Synthetic Dataset for 3D Interacting Hand Pose Estimation. International Conference on Computer Vision (ICCV), 2023.

Xinshun Wang, Zhongbin Fang, Xia Li, Xiangtai Li, Chen Chen, Mengyuan Liu. Skeleton-in-Context: Unified Skeleton Sequence Modeling with In-Context Learning. IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2024.

Wenhao Li, Mengyuan Liu, Hong Liu, Pichao Wang, Jialun Cai, Nicu Sebe. Hourglass Tokenizer for Efficient Transformer-Based 3D Human Pose Estimation. IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2024.

Qitao Zhao, Ce Zheng, Mengyuan Liu, Pichao Wang, Chen Chen. PoseFormerV2: Exploring Frequency Domain for Efficient and Robust 3D Human Pose Estimation. IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2023. 225 citations

Mengyuan Liu, Junsong Yuan. Recognizing Human Actions as the Evolution of Pose Estimation Maps. IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2018. 396 citations

Junwu Weng, Mengyuan Liu, Xudong Jiang, Junsong Yuan. Deformable Pose Traversal Convolution for 3D Action and Gesture Recognition. European Conference on Computer Vision (ECCV), 2018.

Bin Ren, Yawei Li, Jingyun Liang, Rakesh Ranjan, Mengyuan Liu, Rita Cucchiara, Luc Van Gool, Ming-Hsuan Yang, Nicu Sebe. Sharing Key Semantics in Transformer Makes Efficient Image Restoration. Annual Conference on Neural Information Processing Systems (NeurIPS), 2024.

Yuhang Wen, Mengyuan Liu, Songtao Wu, Beichen Ding. CHASE: Learning Convex Hull Adaptive Shift for Skeleton-based Multi-Entity Action Recognition. Annual Conference on Neural Information Processing Systems (NeurIPS), 2024.

Zhongbin Fang, Xiangtai Li, Xia Li, Joachim M Buhmann, Chen Change Loy, Mengyuan Liu. Explore In-Context Learning for 3D Point Cloud Understanding. Annual Conference on Neural Information Processing Systems (NeurIPS), 2023.

Qitao Zhao, Ce Zheng, Mengyuan Liu, Chen Chen. A Single 2D Pose with Context is Worth Hundreds for 3D Human Pose Estimation. Annual Conference on Neural Information Processing Systems (NeurIPS), 2023.

Yang Liu, Mengyuan Liu, Shudong Huang, Jiancheng Lv. Asymmetric Visual Semantic Embedding Framework for Efficient Vision-Language Alignment. AAAI Conference on Artificial Intelligence (AAAI), 2025.

Jiajie Liu, Mengyuan Liu, Hong Liu, Wenhao Li. TCPFormer: Learning Temporal Correlation with Implicit Pose Proxy for 3D Human Pose Estimation. AAAI Conference on Artificial Intelligence (AAAI), 2025.

Zixiao Wang, Junwu Weng, Mengyuan Liu, Bei Yu. FlexPose: Pose Distribution Adaptation with Limited Guidance. AAAI Conference on Artificial Intelligence (AAAI), 2025.

Wanruo Zhang, Mengyuan Liu, Hong Liu, Wenhao Li. SVTformer: Spatial-View-Temporal Transformer for Multi-View 3D Human Pose Estimation. AAAI Conference on Artificial Intelligence (AAAI), 2025.

Pengxiang Ding, Qiongjie Cui, Haofan Wang, Min Zhang, Mengyuan Liu, Donglin Wang. Expressive Forecasting of 3D Whole-Body Human Motions. AAAI Conference on Artificial Intelligence (AAAI), 2024.

Xinshun Wang, Qiongjie Cui, Chen Chen, Mengyuan Liu. GCNext: Towards the Unity of Graph Convolutions for Human Motion Prediction. AAAI Conference on Artificial Intelligence (AAAI), 2024.

Tianyu Guo, Hong Liu, Zhan Chen, Mengyuan Liu, Tao Wang, Runwei Ding. Contrastive Learning from Extremely Augmented Skeleton Sequences for Self-Supervised Action Recognition. AAAI Conference on Artificial Intelligence (AAAI), 2022. 208 citations

Mengyuan Liu, Fanyang Meng, Chen Chen, Songtao Wu. Joint Dynamic Pose Image and Space Time Reversal for Human Action Recognition from Videos. AAAI Conference on Artificial Intelligence (AAAI), 2019.