

Wanhua Li

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Academic Employment

School of Engineering and Applied Sciences, Harvard University

Postdoctoral Fellow, working with Prof. Hanspeter Pfister

Boston, USA

Oct. 2022 - Present

Education

Department of Automation, Tsinghua University

Ph.D. in Computer Vision

Advisors: Prof. Jiwen Lu, Prof. Jianjiang Feng, and Prof. Jie Zhou

Beijing, China

Aug. 2017 - Jun. 2022

School of Data and Computer Science, Sun Yat-Sen University

B.E. in Computer Science

Guangzhou, China

Aug. 2013 - Jun. 2017

Work Experiences

Visual Computing Group at Microsoft Research Asia (MSRA)

○ Research assistant, working with Dr. Qi Dai and Dr. Han Hu

Jun. 2022 - Oct. 2022

Publications

* indicates equal contribution, ✉ indicates corresponding author

Peer-Reviewed Conference Publications

- [1] **Wanhua Li***, Yujie Zhao*, Minghan Qin*, Yang Liu, Yuanhao Cai, Chuang Gan, Hanspeter Pfister
LangSplatV2: High-dimensional 3D Language Gaussian Splatting with 450+ FPS
Conference on Neural Information Processing Systems (NeurIPS), 2025
- [2] Jixuan Fan*, **Wanhua Li***, Yifei Han, Tianru Dai, Yansong Tang
Momentum-GS: Momentum Gaussian Self-Distillation for High-Quality Large Scene Reconstruction
IEEE International Conference on Computer Vision (ICCV), 2025
- [3] Haonan Han, Rui Yang, Huan Liao, Jiankai Xing, Zunnan Xu, Xiaoming Yu, Junwei Zha, Xiu Li✉, **Wanhua Li✉**
REPARO: Compositional 3D Assets Generation with Differentiable 3D Layout Alignment
IEEE International Conference on Computer Vision (ICCV), 2025
- [4] **Wanhua Li***, Renping Zhou*, Jiawei Zhou, Yingwei Song, Johannes Herter, Minghan Qin, Gao Huang, Hanspeter Pfister
4D LangSplat: 4D Language Gaussian Splatting via Multimodal Large Language Models
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2025
- [5] Tong Ding, **Wanhua Li✉**, Zhongqi Miao, Hanspeter Pfister
Tree of Attributes Prompt Learning for Vision-Language Models
International Conference on Learning Representations (ICLR), 2025
- [6] Yichen Wu, Hongming Piao, Long-Kai Huang, Renzhen Wang, **Wanhua Li**, Hanspeter Pfister, Deyu Meng, Kede Ma, Ying Wei
SD-LoRA: Scalable Decoupled Low-Rank Adaptation for Class Incremental Learning
International Conference on Learning Representations (ICLR), 2025 (Oral, 1.8%)
- [7] **Wanhua Li***, Zibin Meng*, Jiawei Zhou, Donglai Wei, Chuang Gan, Hanspeter Pfister
SocialGPT: Prompting LLMs for Social Relation Reasoning via Greedy Segment Optimization
Conference on Neural Information Processing Systems (NeurIPS), 2024
- [8] Ye Liu, Jixuan He, **Wanhua Li✉**, Junsik Kim, Donglai Wei, Hanspeter Pfister, Chang Wen Chen✉
R²-Tuning: Efficient Image-to-Video Transfer Learning for Video Temporal Grounding
European Conference on Computer Vision (ECCV), 2024

- [9] Minghan Qin*, **Wanhua Li***[✉], Jiawei Zhou*, Haoqian Wang[✉], Hanspeter Pfister
LangSplat: 3D Language Gaussian Splatting
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024 (Highlight)
- [10] Kento Nishi, Junsik Kim, **Wanhua Li**, Hanspeter Pfister
Joint-Task Regularization for Partially Labeled Multi-Task Learning
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024
- [11] Zhiyi Shi, Junsik Kim, **Wanhua Li**, Yicong Li, Hanspeter Pfister
MoRA: LoRA Guided Multi-Modal Disease Diagnosis with Missing Modality
International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI), 2024
- [12] Junsik Kim, Zhiyi Shi, Davin Jeong, Johannes Knittel, Helen Y. Yang, Yonghyun Song, **Wanhua Li**, Yicong Li, Dalit Ben-Yosef, Daniel Needleman, Hanspeter Pfister
Multimodal Learning for Embryo Viability Prediction in Clinical IVF
International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI), 2024
- [13] Devaansh Gupta, Siddhant Kharbanda, Jiawei Zhou, **Wanhua Li**, Hanspeter Pfister, and Donglai Wei
CLIPTrans: Transferring Visual Knowledge with Pre-trained Models for Multimodal Machine Translation
IEEE International Conference on Computer Vision (ICCV), 2023
- [14] Shuai Shen, **Wanhua Li**, Xiaobing Wang, Dafeng Zhang, Zhezhu Jin, Jie Zhou, and Jiwen Lu
CLIP-Cluster: CLIP-Guided Attribute Hallucination for Face Clustering
IEEE International Conference on Computer Vision (ICCV), 2023
- [15] Shuai Shen, Wenliang Zhao, Zibin Meng, **Wanhua Li**, Zheng Zhu, Jie Zhou, and Jiwen Lu
DiffTalk: Crafting Diffusion Models for Generalized Audio-Driven Portraits Animation
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2023
- [16] **Wanhua Li***, Xiaoke Huang*, Zheng Zhu, Yansong Tang, Xiu Li, Jie Zhou, and Jiwen Lu
OrdinalCLIP: Learning Rank Prompts for Language-Guided Ordinal Regression
Conference on Neural Information Processing Systems (NeurIPS), 2022
- [17] **Wanhua Li**, Zhexuan Cao, Jianjiang Feng, Jie Zhou, and Jiwen Lu
Label2Label: A Language Modeling Framework for Multi-Attribute Learning
European Conference on Computer Vision (ECCV), 2022
- [18] Shuai Shen, **Wanhua Li**, Zheng Zhu, Yueqi Duan, Jie Zhou, and Jiwen Lu
Learning Dynamic Facial Radiance Fields for Few-Shot Talking Head Synthesis
European Conference on Computer Vision (ECCV), 2022
- [19] **Wanhua Li**, Xiaoke Huang, Jiwen Lu, Jianjiang Feng, and Jie Zhou
Learning Probabilistic Ordinal Embeddings for Uncertainty-Aware Regression
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2021
- [20] **Wanhua Li**, Shiwei Wang, Jiwen Lu, Jianjiang Feng, and Jie Zhou
Meta-Mining Discriminative Samples for Kinship Verification
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2021
- [21] Shuai Shen, **Wanhua Li**, Zheng Zhu, Guan Huang, Dalong Du, Jiwen Lu, and Jie Zhou
Structure-Aware Face Clustering on a Large-Scale Graph with 10^7 Nodes
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2021
- [22] Bingyao Yu, **Wanhua Li**, Xiu Li, Jiwen Lu, and Jie Zhou
Frequency-Aware Spatiotemporal Transformers for Video Inpainting Detection
IEEE International Conference on Computer Vision (ICCV), 2021
- [23] **Wanhua Li**, Yueqi Duan, Jiwen Lu, Jianjiang Feng, and Jie Zhou
Graph-Based Social Relation Reasoning
European Conference on Computer Vision (ECCV), 2020
- [24] **Wanhua Li**, Jiwen Lu, Jianjiang Feng, Chunjing Xu, Jie Zhou and Qi Tian
BridgeNet: A Continuity-Aware Probabilistic Network for Age Estimation
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2019
- [25] **Wanhua Li**, Yingqiang Zhang, Kangchen Lv, Jiwen Lu, Jianjiang Feng, and Jie Zhou
Graph-Based Kinship Reasoning Network
IEEE International Conference on Multimedia and Expo (ICME), 2020, Oral Presentation
- [26] Benchao Li, **Wanhua Li**, Yongyi Tang, Jian-Fang Hu, and Wei-Shi Zheng
GL-PAM RGB-D Gesture Recognition
IEEE International Conference on Image Processing (ICIP), 2018

Peer-Reviewed Journal Publications

- [27] Zhongqi Miao, Yuanhan Zhang, Zalan Fabian, Andres Hernandez Celis, Sara Beery, Chunyuan Li, Ziwei Liu, Amrita Gupta, Md Nasir, **Wanhua Li**, Jason Holmberg, Meredith Palmer, Kaitlyn Gaynor, Rahul Dodhia, Juan Lavista Ferres
New frontiers in AI for biodiversity research and conservation with multimodal language models
Methods in Ecology and Evolution, 2025
- [28] Jia Wan, **Wanhua Li**, Jason Ken Adhinarta, Atmadeep Banerjee, Evelina Sjostedt, Jingpeng Wu, Jeff Lichtman, Hanspeter Pfister, Donglai Wei
TriSAM: Tri-Plane SAM for zero-shot cortical blood vessel segmentation in VEM images
IEEE Journal of Biomedical and Health Informatics (JBHI), 2025
- [29] Hongyi Sun, **Wanhua Li**, Jiwen Lu, Jie Zhou
Mask-Aware 3D axial transformer for video inpainting
Pattern Recognition (PR), 2025
- [30] Yicong Li, **Wanhua Li***, Qi Chen*, Wei Huang*, Yuda Zou*, Xin Xiao*, Kazunori Shinomiya, Pat Gunn, Nishika Gupta, Alexey Polilov, Yongchao Xu, Yueyi Zhang, Zhiwei Xiong, Hanspeter Pfister, Donglai Wei, Jingpeng Wu
WASPSYN: A Challenge for Domain Adaptive Synapse Detection in Microwasp Brain Connectomes
IEEE Transactions on Medical Imaging (TMI), 2024
- [31] Bingyao Yu, **Wanhua Li**, Xiu Li, Jie Zhou, and Jiwen Lu
Uncertainty-aware hierarchical labeling for face forgery detection
Pattern Recognition (PR), 2024
- [32] Shuai Shen, **Wanhua Li**, Zheng Zhu, Jie Zhou, and Jiwen Lu
STAR-FC: Structure-Aware Face Clustering on Ultra-Large-Scale Graphs
IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI, IF: 24.31), 2023
- [33] Shuai Shen*, **Wanhua Li***, Xiaoke Huang*, Zheng Zhu, Jie Zhou, and Jiwen Lu
SD-NeRF: Towards Lifelike Talking Head Animation via Spatially-adaptive Dual-driven NeRFs
IEEE Transactions on Multimedia (TMM), 2023
- [34] Bingyao Yu, Xiu Li, **Wanhua Li**, Jie Zhou, and Jiwen Lu
Discrepancy-aware Meta-learning for Zero-shot Face Manipulation Detection
IEEE Transactions on Image Processing (TIP), 2023
- [35] **Wanhua Li**, Jiwen Lu, Abudukelimu Wuerkaixi, Jianjiang Feng, and Jie Zhou
MetaAge: Meta-Learning Personalized Age Estimators
IEEE Transactions on Image Processing (TIP), 2022
- [36] Hongyi Sun, **Wanhua Li**, Yueqi Duan, Jie Zhou, and Jiwen Lu
Learning Adaptive Patch Generators for Mask-Robust Image Inpainting
IEEE Transactions on Multimedia (TMM), 2022
- [37] **Wanhua Li**, Jiwen Lu, Abudukelimu Wuerkaixi, Jianjiang Feng, and Jie Zhou
Reasoning Graph Networks for Kinship Verification: from Star-shaped to Hierarchical
IEEE Transactions on Image Processing (TIP), 2021

Talks

- **Towards Medical Image Foundation Models via Multimodal Learning**
Invited talk at University of Pittsburgh May 2025
- **Beyond 2D Pixels: Towards General-Purpose Intelligent Agents with Vision Foundation Models**
Invited talk at Princeton University Mar. 2025
- **Learning Probabilistic Ordinal Embeddings for Uncertainty-Aware Regression**
Invited Presentation at 2021 Beijing University Academic Forum on Artificial Intelligence Apr. 2021
- **Graph-Based Kinship Reasoning Network**
ICME'2020 Oral Presentation Jul. 2020
- **BridgeNet: A Continuity-Aware Probabilistic Network for Age Estimation**
Invited Presentation at 2019 Beijing University Academic Forum on Artificial Intelligence Mar. 2019

Scholarships and Awards

- NeurIPS Scholar Award 2022
- ICCV Doctoral Consortium Travel Award 2021

○ Weihai Talent Scholarship, Tsinghua	2021
○ 3rd Place in VIPriors Instance Segmentation Challenge at ICCV	2021
○ Outstanding Oral Presentation at 2021 Beijing University Academic Forum on Artificial Intelligence	2021
○ 2nd Place in ChaLearn LAP Large-scale Isolated Gesture Recognition Challenge at ICCV	2017
○ Outstanding Undergraduate Thesis, SYSU	2017
○ Outstanding Graduate, SYSU	2017
○ National Encouragement Scholarship, Ministry of Education of P.R. China	2016
○ National Scholarship, Ministry of Education of P.R. China	2015
○ National Scholarship, Ministry of Education of P.R. China	2014

Grants

○ Harvard Data Science Initiative Azure Funding \$40,000 in credit, Harvard University, PI: Wanhua Li	2023 - 2024
○ HDSI-AI4G Collaboration Azure Grant \$30,000 in credit, Harvard University, PI: Wanhua Li	2024 - 2024

Academic Services

Conference Reviewer / PC Member

- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)
- International Conference on Computer Vision (ICCV)
- European Conference on Computer Vision (ECCV)
- Conference on Neural Information Processing Systems (NeurIPS)
- AAAI Conference on Artificial Intelligence (AAAI)
- International Joint Conference on Artificial Intelligence (IJCAI)
- IEEE International Conference on Multimedia and Expo (ICME)
- IEEE International Conference on Image Processing (ICIP)
- International Conference on Pattern Recognition (ICPR)
- Chinese Conference on Pattern Recognition and Computer Vision (PRCV)
- IEEE International Conference on Automatic Face and Gesture Recognition (FG)
- ACM SIGGRAPH

Journal Reviewer

- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Transactions on Image Processing
- IEEE Transactions on Neural Networks and Learning Systems
- IEEE Transactions on Circuits and Systems for Video Technology
- IEEE Transactions on Biometrics, Behavior, and Identity Science
- IEEE Transactions on Artificial Intelligence
- IEEE Transactions on Affective Computing
- IEEE Transactions on Cybernetics
- IEEE Transactions on Multimedia
- IEEE Signal Processing Letters
- International Journal of Computer Vision
- Pattern Recognition
- Neural Networks

- Neurocomputing
- Pattern Recognition Letters
- Journal of Visual Communication and Image Representation
- Knowledge-Based Systems
- Frontiers of Computer Science