Wanhua Li

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Academic Employment

School of Engineering and Applied Sciences, Harvard University   Boston, USA
  Postdoctoral Fellow, working with Prof. Hanspeter Pfister   *Oct. 2022 - Present*

Education

Department of Automation, Tsinghua University   Beijing, China
  Ph.D. in Computer Vision   *Aug. 2017 - Jun. 2022*
  Advisors: Prof. Jiwen Lu, and Prof. Jianjiang Feng
  GPA: 3.9/4.0, Top 1/76

School of Data and Computer Science, Sun Yat-Sen University   Guangzhou, China
  B.E. in Computer Science   *Aug. 2013 - Jun. 2017*
  GPA: 4.0/4.0, Top 1/118

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] 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*

[2] 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*

[3] **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*

[4] Tong Ding, **Wanhua Li**✉, Zhongqi Miao, Hanspeter Pfister
   Tree of Attributes Prompt Learning for Vision-Language Models
   *International Conference on Learning Representations (**ICLR**), 2025*

[5] 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%)**

[6] **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*

[7] Ye Liu, Jixuan He, **Wanhua Li**✉, Junsik Kim, Donglai Wei, Hanspeter Pfister, Chang Wen Chen✉
   R^2-Tuning: Efficient Image-to-Video Transfer Learning for Video Temporal Grounding
   *European Conference on Computer Vision (**ECCV**), 2024*

[8] 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)**

[9] 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

[10] 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

[11] 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

[12] 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

[13] 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

[14] 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

[15] **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

[16] **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

[17] 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

[18] **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

[19] **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

[20] 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

[21] 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

[22] **Wanhua Li**, Yueqi Duan, Jiwen Lu, Jianjiang Feng, and Jie Zhou
Graph-Based Social Relation Reasoning
European Conference on Computer Vision (***ECCV***), 2020

[23] **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

[24] **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*

[25] 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

[26] 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

[27] 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*

[28] Hongyi Sun, **Wanhua Li**, Jiwen Lu, Jie Zhou
Mask-Aware 3D axial transformer for video inpainting
Pattern Recognition (**PR**), *2025*

[29] 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*

[30] Bingyao Yu, **Wanhua Li**, Xiu Li, Jie Zhou, and Jiwen Lu
Uncertainty-aware hierarchical labeling for face forgery detection
Pattern Recognition (**PR**), *2024*

[31] 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*

[32] 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*

[33] 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*

[34] **Wanhua Li**, Jiwen Lu, Abudukelimu Wuerkaixi, Jianjiang Feng, and Jie Zhou
MetaAge: Meta-Learning Personalized Age Estimators
IEEE Transactions on Image Processing (**TIP**), *2022*

[35] 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*

[36] **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