

# Yixin Wang

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## CONTACT INFORMATION

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## RESEARCH INTERESTS

- Machine learning on Biomedical Imaging
- Computational Neuroscience
- Multimodal Neuroimaging

## EDUCATION

**Stanford University, USA** 09/2022 – present

- Ph.D., Bioengineering
- Ph.D. Minor, Computer Science
- Advisor: Dr. Kilian M. Pohl and Dr. Michael Zeineh

**ICT, Chinese Academy of Sciences, China** 09/2019 – 06/2022

- Master of Engineering, Computer Science

**Shandong University, China** 09/2015 – 06/2019

- Bachelor of Engineering, Computer Science

## PROFESSIONAL EXPERIENCE

**The Computational Neuroscience Laboratory, Stanford** 01/2023 – Present  
Research Assistant, Department of Psychiatry and Behavioral Sciences

- Topic: Neuroimaging, Human Cognition and Behavior Analysis
- Mentor: Dr. Kilian M. Pohl

**Zeineh Lab, Stanford** 04/2023 – Present  
Research Assistant

- Topic: Multimodal Neuroimaging Analysis for Alzheimer's disease
- Mentor: Dr. Michael Zeineh

**Bo Lab, Stanford** 09/2022 – 12/2022  
Research Assistant

- Topic: Transformer Language Models for Cross-species Cell Type Mapping.
- Mentor: Dr. Bo Wang

**Harvard Medical School (HMS) & MIT** 09/2020 – 12/2021  
Research Assistant

- Topic: Machine Learning on Biomedical Imaging and Surgery
- Mentors: Dr. William T. Wells, Dr. Sarah Frisken and Dr. Jax Luo

**ICT, Chinese Academy of Sciences** 09/2019 – 06/2022  
Research Assistant

- Topic: Computer Vision, Medical Image Analysis
- Mentors: Dr. George He (Lenovo Senior Vice President)

**AI Lab, Lenovo Research, Lenovo Inc.**  
Research Intern

04/2019 – 06/2022

- Topic: Semi-supervised Learning, Unsupervised Learning, Multi-modal Learning.
- Mentor: Dr. Yong Rui (ACM,IEEE Fellow) and Dr. Jianping Fan

**Student Union, Shandong University**  
Vice President

09/2017 – 06/2018

HONORS AND  
AWARDS

- Student LEAD, Stanford AIMI Summer Health AI Bootcamp 2024
- Wu Tsai Neurosciences MBCT PhD fellow, Stanford 2024
- ISMRM Trainee Travel Award 2024
- School of Engineering Fellowship, Stanford University 2023
- Presidential Scholarship in Chinese Academy of Sciences (**Highest personal honor**) 2022
- Outstanding Graduate in Chinese Academy of Sciences 2022
- National Scholarship (top 1%) 2021
- First class Academic Scholarship in Chinese Academy of Sciences (top 5%) 2021
- Dean's Award in Chinese Academy of Sciences (top 3/1000+) 2021
- MICCAI BraTS Challenge 2<sup>nd</sup> Place 2020
- MICCAI M&Ms Challenge 2<sup>nd</sup> Place 2020
- MICCAI KiTS Challenge 4<sup>th</sup> Place 2019
- Principal's Scholarship in Shandong University (**Highest personal honor**) 2019
- Top Ten Outstanding Students of Shandong University (top 10/10000+) 2019
- Outstanding Graduate of Shandong Province 2019
- Outstanding Graduate of Shandong University 2019
- Outstanding Graduate Thesis in Shandong University 2019
- Outstanding Student Cadre in Shandong Province 2018
- National Scholarship (top 1%) 2016,2017,2018
- Jicheng Innovation Scholarship in Shandong University 2017
- International Mathematical Contest in Modeling Honorable prize 2017
- Challenge Cup National Academic Science and Technology Competition 1<sup>st</sup> prize 2017

OPEN-SOURCE  
HIGHLIGHTS

- **COVID-19-CT-Seg-Benchmark** [\[Link\]](#) 05/2020 – 12/2020  
A Github Repo towards Efficient COVID-19 CT Annotation: A Benchmark for Lung and Infection Segmentation  
**The first largest COVID-19 3D CT dataset and 40+ pre-trained 3D U-Net models for COVID-19 CT Lung and Infection segmentation.**  
Received 3k+ downloads, 100+ Github stars
- **DANCE** [\[Link\]](#) 10/2022 – Present  
A Python toolkit to support deep learning for single-cell gene expression at scale  
**The first benchmark of computational models for single cell analysis**  
Received 7k+ downloads

- **MMedAgent** [\[Link\]](#) 3/2024 – Present  
The first multimodal medical AI Agent incorporating a wide spectrum of tools to handle various medical tasks across different modalities seamlessly.

#### PUBLICATION

- Google Scholar:** <https://scholar.google.com/citations?user=ykYrXtAAAAAJ&hl=en>  
 • **Impact:** 2000+ citations, h-index: 17, 10 first-authored peer-reviewed publications

#### Conference and Journal Papers

\* indicates equal contribution

- “MMedAgent: Learning to Use Medical Tools with Multi-modal Agent”  
Binxu Li, Tiankai Yan, Yuanting Pan, Zhe Xu, Jie Luo, Ruiyang Ji, Shilong Liu, Haoyu Dong\*, Zihao Lin\*, **Yixin Wang\***  
Conference on Empirical Methods in Natural Language Processing (EMNLP) 2024, Finding.
- “Brain-Cognition Fingerprinting via Graph-GCCA with Contrastive Learning”  
**Yixin Wang**, Wei Peng, Yu Zhang, Ehsan Adeli, Qingyu Zhao, Kilian M Pohl  
Machine Learning in Clinical Neuroimaging in MIICAI 2024, Oral, Best Paper Award
- “Achieving micron-level precision MR-Histology correlation for validating Alzheimer’s disease biomarkers in the human hippocampus”  
**Yixin Wang**, William Hai Dang Ho, Istvan N Huszar, Hossein Moein Taghavi, Jeffrey Nirschl, Samantha Leventis, Philip Schlomer, Markus Axer, Wei Shao, Mirabela Rusu, Phillip DiGiacomo, Marios Georgiadis, Michael Zeineh  
Alzheimer’s Association International Conference 2024
- “Trust it or not: Confidence-guided automatic radiology report generation”  
**Yixin Wang**, Zihao Lin, Zhe Xu, Haoyu Dong, Jie Luo, Jiang Tian, Zhongchao Shi, Lifu Huang, Yang Zhang, Jianping Fan, George He.  
Neurocomputing 578 (2024): 127374
- “SpatialCTD: a large-scale TME spatial transcriptomic dataset to evaluate cell type deconvolution for immuno-oncology”  
Jiayuan Ding, Julian Venegas, Qiaolin Lu, **Yixin Wang**, Lidan Wu, Wei Jin, Hongzhi Wen, Renming Liu, Wenzhuo Tang, Zhaocheng Li, Wangyang Zuo, Yi Chang, Yu Lei, Patrick Danaher, Yuying Xie, Jiliang Tang.  
Journal of Computational Biology 31 (9), 871-885.
- “The Multi-modality Cell Segmentation Challenge: Towards Universal Solutions”  
Jun Ma, Ronald Xie, Shamini Ayyadhury, Cheng Ge, Anubha Gupta, Ritu Gupta, Song Gu, Yao Zhang, Gihun Lee, Joonkee Kim, Wei Lou, Haofeng Li, Eric Upschulte, Timo Dickscheid, Jose Guilherme de Almeida, **Yixin Wang**, Lin Han, Xin Yang, Marco Labagnara, Sahand Jamal Rahi, Carly Kempster, Alice Pollitt, Leon Espinosa, Tam Mignot, Jan Moritz Middeke, Jan-Niklas Eckardt, Wangkai Li, Zhaoyang Li, Xiaochen Cai, Bizhe Bai, Noah F. Greenwald, David Van Valen, Erin Weisbart, Beth A. Cimini, Zhuoshi Li, Chao Zuo, Oscar Bruck, Gary D. Bader, Bo Wang.  
Nature Methods, pp.1-11. 2024 (IF: 48)
- “DANCE: A Deep Learning Library and Benchmark for Single-Cell Analysis”  
Jiayuan Ding, Hongzhi Wen, Wenzhuo Tang, Renming Liu, Zhaocheng Li, Julian Venegas, Runze Su, Dylan Molho, Wei Jin, Wangyang Zuo, **Yixin Wang**, Robert Yang, Yuying Xie, Jiliang Tang.  
Genome Biology, 25(1) pp.1-28, 2024. (IF: 12.3)
- “Volumetric MR, Blockface Imaging, and Histology Deliver High Fidelity Coregistered MR-Histology”  
**Yixin Wang**, William Ho, Istvan N. Huszar, Hossein Moein Taghavi, Jeff Nirschl, Samantha Leventis, Philip Schlomer, Markus Axer, Wei Shao, Mirabela Rusu, Phillip DiGiacomo, Marios Georgiadis, Michael Zeineh  
ISMRM Annual Conference 2024, Accepted, Oral power pitch presentation, 2024.

- “Imputing Brain Measurements Across Data Sets via Graph Neural Networks”  
**Yixin Wang**, Wei Peng, Susan F. Tapert, Qingyu Zhao, Kilian M. Pohl.  
Predictive Intelligence in Medicine, Lecture Notes in Computer Science, 14277, pp 172–183, 2023.
- “Towards Expert-Amateur Collaboration: Prototypical Label Isolation Learning for Left Atrium Segmentation with Mixed-Quality Labels”  
Zhe Xu, Jiangpeng Yan, Donghuan Lu, **Yixin Wang**, Jie Luo, Yefeng Zheng, Raymond Kai-Yu Tong.  
International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI) (7) 2023: 99-109.
- “Rethinking Medical Report Generation: Disease Revealing Enhancement with Knowledge Graph”  
**Yixin Wang\***, Zihao Lin\*, Haoyu Dong\*.  
Interpretable Machine Learning in Healthcare, International Conference on Machine Learning, 2023.
- “Ambiguity-selective consistency regularization for mean-teacher semi-supervised medical image segmentation”  
Zhe Xu, **Yixin Wang**, Donghuan Lu, Xiangde Luo, Jiangpeng Yan, Yefeng Zheng, Raymond Kai-Yu Tong.  
Medical Image Analysis, 88: 102880 (2023).
- “SAP-DETR: Bridging the Gap Between Salient Points and Queries-Based Transformer Detector for Fast Model Convergency”  
Yang Liu, Yao Zhang, **Yixin Wang**, Yang Zhang, Jiang Tian, Zhongchao Shi, Jianping Fan, George He.  
Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2023): 15539-15547, 2023.
- “Deep Learning in Single-Cell Analysis”  
Dylan Molho, Jiayuan Ding, Wenzhuo Tang, Zhaoheng Li, Hongzhi Wen, **Yixin Wang**, Julian Venegas, Wei Jin, Renming Liu, Runze Su, Patrick Danaher, Robert Yang, Yu Leo Lei, Yuying Xie, Jiliang Tang  
ACM Trans. Intell. Syst. Technol. 2023
- “On the Dataset Quality Control for Image Registration Evaluation”  
Jie Luo, Guangshen Ma, Nazim Haouchine, Zhe Xu, **Yixin Wang**, Tina Kapur, Lipeng Ning, William M. Wells III, Sarah F. Frisken.  
International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI) (6) 2022: 36-45.
- “Denoising for Relaxing: Unsupervised Domain Adaptive Fundus Image Segmentation Without Source Data”  
Zhe Xu, Donghuan Lu, **Yixin Wang**, Jie Luo, Dong Wei, Yefeng Zheng, Raymond Kai-Yu Tong.  
International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI) (5) 2022: 214-224.
- “A Survey of Visual Transformers”  
Yang Liu, Yao Zhang, **Yixin Wang**, Feng Hou, Jin Yuan, Jiang Tian, Yang Zhang, Zhongchao Shi, Jianping Fan, George He.  
IEEE Transactions on Neural Networks and Learning Systems, early access, Jun. 10, 2022
- “Anti-Interference From Noisy Labels: Mean-Teacher-Assisted Confident Learning for Medical Image Segmentation”  
Zhe Xu, Donghuan Lu, Jie Luo, **Yixin Wang**, Jiangpeng Yan, Kai Ma, Yefeng Zheng, Raymond Kai-Yu Tong.  
IEEE Transactions on Medical Imaging, 41(11): 3062-3073, 2022.

- “Cross-Domain Few-Shot Learning for Rare-Disease Skin Lesion Segmentation”  
**Yixin Wang**, Zhe Xu, Jiang Tian, Jie Luo, Zhongchao Shi, Yang Zhang, Jianping Fan, George He.  
International Conference on Acoustics, Speech, and Signal Processing (ICASSP): 1086-1090, 2022.
- “All-Around Real Label Supervision: Cyclic Prototype Consistency Learning for Semi-Supervised Medical Image Segmentation”  
Zhe Xu, **Yixin Wang**, Donghuan Lu, Lequan Yu, Jiangpeng Yan, Jie Luo, Kai Ma, Yefeng Zheng, Raymond Kai-Yu Tong.  
IEEE Journal of Biomedical and Health Informatics, 26(7): 3174-3184, 2022.
- “Incorporating Uncertainty Into Path Planning for Minimally Invasive Robotic Neurosurgery”  
Sarah F. Frisken, Jie Luo, Nazim Haouchine, Steven D. Pieper, **Yixin Wang**, William M. Wells, Alexandra J. Golby.  
IEEE Transactions on Medical Robotics and Bionics, vol. 4, pp. 5-16, 2022.
- “Toward data-efficient learning: A benchmark for COVID-19 CT lung and infection segmentation”  
Jun Ma, **Yixin Wang**, Xingle An, Cheng Ge, Ziqi Yu, Jianan Chen, Qiongjie Zhu, Guoqiang Dong, Jian He, George He, Tianjia Cao, Yuntao Zhu, Ziwei Nie, Xiaoping Yang.  
*Medical Physics*, vol. 48, no. 3, pp. 1197-1210, Mar. 2021.  
doi: 10.1002/mp.14676.
- “Does non-COVID-19 lung lesion help? investigating transferability in COVID-19 CT image segmentation”  
**Yixin Wang**, Yao Zhang, Yang Liu, Jiang Tian, Cheng Zhong, Zhongchao Shi, Yang Zhang, George He.  
Computational Methods and Programs in Biomedicine, 202: 106004, 2021.
- “ACN: Adversarial Co-training Network for Brain Tumor Segmentation with Missing Modalities”  
**Yixin Wang**, Yang Zhang, Yang Liu, Zihao Lin, Jiang Tian, Cheng Zhong, Zhongchao Shi, Jianping Fan, George He.  
In: International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI). pp. 410-420. 2021
- “Noisy Labels are Treasure: Mean-Teacher-Assisted Confident Learning for Hepatic Vessel Segmentation”  
Zhe Xu, Donghuan Lu, **Yixin Wang**, Jie Luo, Jagadeesan Jayender, Kai Ma, Yefeng Zheng, Xiu Li.  
International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI), pp. 3-13, 2021
- “The state of the art in kidney and kidney tumor segmentation in contrast-enhanced CT imaging: Results of the KiTS19 challenge”  
Nicholas Heller, Fabian Isensee, Klaus H. Maier-Hein, Xiaoshuai Hou, Chunmei Xie, Fengyi Li, Yang Nan, Guangrui Mu, Zhiyong Lin, Miofei Han, Guang Yao, Yao Zhang, **Yixin Wang**, Feng Hou, Jiawei Yang, Guangwei Xiong, Jiang Tian, Christopher Weight.  
Medical Image Analysis, 67: 101821, 2021.
- “Double-Uncertainty Weighted Method for Semi-supervised Learning”  
**Yixin Wang**, Yao Zhang, Jiang Tian, Cheng Zhong, Zhongchao Shi, Yang Zhang, George He.  
International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI), pp. 542-551, 2020
- “Modality-Pairing Learning for Brain Tumor Segmentation”  
**Yixin Wang**, Yao Zhang, Feng Hou, Yang Liu, Jiang Tian, Cheng Zhong, Yang Zhang, George He.  
Brainlesion: Glioma, Multiple Sclerosis, Stroke and Traumatic Brain Injuries. BrainLes 2020: 230-240, 2020.
- “Semi-supervised Cardiac Image Segmentation via Label Propagation and Style Transfer”  
Yao Zhang, Jiawei Yang, Feng Hou, Yang Liu, **Yixin Wang**, Jiang Tian, Cheng Zhong, Yang

Zhang, George He.  
Statistical Atlases and Computational Models of the Heart. M&Ms and EMIDEC Challenges.  
STACOM 2020.

- “How Distance Transform Maps Boost Segmentation CNNs: An Empirical Study”  
Jun Ma, Zhan Wei, Yiwen Zhang, **Yixin Wang**, Rongfei Lv, Cheng Zhu, Chen Gaoxiang, Jianan Liu, Chao Peng, Lei Wang, Yunpeng Wang, Jianan Chen.  
International Conference on Medical Imaging with Deep Learning (MIDL), 2020.
- “FGB: Feature Guidance Branch for Organ Detection in Medical Images”  
**Yixin Wang**, Yao Zhang, Li Liu, Cheng Zhong, Jiang Tian, Yang Zhang, Zhongchao Shi, George He.  
IEEE 17th International Symposium on Biomedical Imaging (ISBI) 2020: 349-353, 2020.

### Preprints and Submissions

- “Mem-GAN: A Pseudo Membrane Generator for Single-cell Imaging in Fluorescent Microscopy”  
**Yixin Wang**, Jiayuan Ding, Lidan Wu, Aster Wardhani, View ORCID ProfilePatrick Danaher, Qiaolin Lu, Hongzhi Wen, Wenzhuo Tang, Yi Chang, Yu Leo Lei, Jiliang Tang, Yuying Xie.  
bioRxiv, Nov 08, 2023.

### TEACHING EXPERIENCE

- Teaching Assistant for BIODS227: Machine Learning for Neuroimaging, Stanford 2023, 2024  
– Duties included online discussions, examination and grading.
- Teaching Assistant for BIOE131 Ethics in Bioengineering, Stanford 2024  
– Lead discussion sections, Technical support, grade essays, host office hours
- Teaching Assistant for BIOE224 Probes and Applications for Multi-modality Molecular Imaging of Living Subjects, Stanford 2024

### SERVICES

#### Program Committee Member & Conference Reviewer

- Conference on Information and Knowledge Management (CIKM) 2023
- International Conference on Computer Vision (ICCV) 2021,2023
- International Conference on Machine Learning (ICML) 2021,2022,2023
- The British Machine Vision Conference (BMVC) 2021
- Medical Image Computing and Computer Assisted Intervention (MICCAI) 2021,2022,2023
- International Conference on Learning Representations (ICLR) 2023

#### Journal Reviewer

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2024
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS) 2023
- Transactions on Intelligent Systems and Technology (TIST) 2023
- IEEE Transactions on Automation Science and Engineering (TASE) 2024
- Engineering Applications of Artificial Intelligence (EAAI) 2024
- Frontiers in Radiology 2024
- Frontiers in Artificial Intelligence 2024