CURRICULUM VITAE

Zongwei Zhou, PhD

[work] Postdoctoral Researcher
Department of Computer Science, 248 Malone Hall
Johns Hopkins University, Baltimore, MD
zzhou82@jh.edu – www.zongweiz.com

[home] 6221 Greenleigh Ave, Apt 257, Baltimore, MD 21220
Phone: 480-738-2575
giovanni.z.zhou@gmail.com

Born: Shaoxing, Zhejiang, China
Date of Birth: 03 December 1993
Citizenship: China

Education

From	To	Degree	Institution and Location	Field of Study
08/2017	05/2021	Ph.D.	Arizona State University, USA	Biomedical Informatics
09/2012	06/2016	B.Sc.	Dalian University of Technology, China	Computer Science

Awards and Honors

2022	Top 2% Scientists Worldwide, Stanford University
2022	AMIA Doctoral Dissertation Award
2022	MICCAI Young Scientist Publication Impact Award Finalist
2022	IEEE TMI Distinguished Reviewer
2020-21	University Graduate Fellowship, Arizona State University
2020	Co-PI, Bridges AI Project (135,360 GPU hours, 12,000 GB Storage); PI: J. Liang
2020	Elsevier-MedIA Best Paper Award
2020	SUN Award, Arizona State University
2020	MICCAI Student Participation Award
2020	First places in Annual Student Poster Competition, BMI/BMD Symposium
2019	MICCAI Young Scientist Award
2019	MICCAI Best Presentation Award Finalist
2019	MICCAI Graduate Student Travel Award
2019	First place in the Annual Student Poster Competition, Mayo Clinic Symposium
2016	Outstanding Graduate, Dalian University of Technology

Employment, Research, and Academic Positions

2021-	Postdoctoral Researcher, Johns Hopkins University, Baltimore, MD, USA
2018	Research Intern, Centre Hospitalier de l'Université de Montréal, Montreal, Canada
2017	Research Intern, Mayo Clinic, Rochester, MN, USA

Professional Memberships

2022-	North American Training/Student Membership
2021-	Student Member, Association for Computing Machinery (ACM)
2021-	Member, American Medical Informatics Association (AMIA)
2017-	Young Professionals, the Institute of Electrical and Electronics Engineers (IEEE)
2017-	Student Member, the Institute of Electrical and Electronics Engineers (IEEE)

Professional Services

Guest Editor

Journal of Imaging, Special Issue on "Imaging Informatics: Computer-aided Diagnosis"
Applied Sciences, Special Issue on "Artificial Intelligence in Biomedical Image Processing"
Machine Intelligence Research, Special Issue on "Multi-Modal Representation Learning"
Frontiers in Radiology, Special Issue on "AI Applications for Cancer Diagnosis in Radiology"
Sensors, Special Issue on "Advances of Deep Learning in Medical Image Interpretation"

Journal Reviewer

IEEE Transactions on Pattern Analysis and Machine Intelligence
IEEE Transactions on Neural Networks and Learning Systems
International Journal of Computer Vision
Medical Image Analysis
Artificial Intelligence in Medicine
Information Fusion
IEEE Transactions on Medical Imaging
Pattern Recognition
Computer Methods and Programs in Biomedicine
IEEE Transactions on Biomedical Engineering
Journal of Biomedical and Health Informatics
IEEE Access
Journal of Biomedical Informatics

Workshop Co-Organizer

ICML'23 Workshop on Interpretable Machine Learning in Healthcare (IMLH), Hawaii, USA
ICML'22 Workshop on Interpretable Machine Learning in Healthcare (IMLH), Baltimore, USA

Conference Program Committee

International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI'23), Vancouver, Canada
International Conference on Computer Vision (ICCV'23), Paris, France
Medical Imaging with Deep Learning (MIDL'23), Nashville, USA
IEEE International Symposium on Biomedical Imaging (ISBI'23), Cartagena, Colombia
Conference on Computer Vision and Pattern Recognition (CVPR'23), Vancouver, Canada
AAAI Conference on Artificial Intelligence (AAAI'23), Washington DC, USA
IEEE/CVF Winter Conference on Applications of Computer Vision (WACV'23), Hawaii, USA
International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI'22), Singapore
Conference on Computer Vision and Pattern Recognition (CVPR'22), New Orleans, USA
AAAI Conference on Artificial Intelligence (AAAI'22), Vancouver, Canada
ICCV'21 Workshop on Computer Vision for Automated Medical Diagnosis (CVAMD), Montreal, Canada
International Conference on Computer Vision (ICCV'21), Montreal, Canada
International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI'21), Strasbourg, France
AAAI Conference on Artificial Intelligence (AAAI'21), Vancouver, Canada
International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI'20), Lima, Peru
AAAI Conference on Artificial Intelligence (AAAI'20), New York, USA
ICCV'19 Workshop on Visual Recognition for Medical Images (VRMI), Seoul, Korea

Invited Talks

Towards Annotation-Efficient Deep Learning for Computer-Aided Diagnosis
12/16/2022   Venue: HIT (Healthcare, Intelligence, Technology) Webinar, Host: Dr. Jiancheng Yang
11/07/2022   Venue: AMIA 2022 Annual Symposium, Host: Dr. Jeffrey J. Williamson
11/05/2021   Venue: Biomedical Informatics (BMI) Seminar, Host: Dr. Anita Murcko
08/03/2021   Venue: Medical Image Computing Seminar (MICS), Host: Dr. Hongkai Wang
04/26/2021   Venue: DLML Journal Club @Mayo Clinic, Host: Cindy Dilworth
12/06/2020   Venue: Arizona Physiological Society's (AZPS) Annual Meeting, Host: Dr. Dawn Coletta
11/06/2020   Venue: CIDSE Invited Talk @Arizona State University, Host: Dr. Yalin Wang
09/04/2020   Venue: BMI Seminar @Arizona State University, Host: Dr. Anita Murcko
08/13/2020   Venue: Phoenix Symposium on Data Analytics in Healthcare, Host: Dr. Claire Pascavis

How to develop a quality organization of doctoral dissertations and thesis defenses?
12/08/2022   Venue: Seminar at University of Missouri-Columbia, Host: Dr. Robert Sanders

Synthetic Tumors Make AI Segment Real Tumors Better
11/26/2022   Venue: Du'Shu Forum/The 2nd Youth Academic Forum, Host: Dr. S. Kevin Zhou

Data Assemble: Towards Efficient Medical Image Analysis
10/01/2021   Venue: MICCAI 2021 FLARE Challenge Keynote, Host: Dr. Jun Ma

The Will of Computer Vision
01/28/2021   Venue: VALSE Student Webinar, Host: Dr. Yong Xia

Models Genesis: Generic Autodidactic Models for 3D Medical Image Analysis
11/11/2019   Venue: Mila – Quebec Artificial Intelligence Institute, Host: Dr. Joseph Paul Cohen
10/24/2019   Venue: AI Research Club
09/24/2019   Venue: MICS Webinar, Host: Dr. Yong Xia, Dr. Huiguang He

UNet++: A Nested U-Net Architecture for Medical Image Segmentation
09/18/2018   Venue: AI Research Club

How to Cut Annotation Cost in Biomedical Imaging
05/22/2018   Venue: Centre Hospitalier de l'Université de Montréal, Host: Dr. Catherine Huet

Teaching

2021   BMI 505: Foundations of BMI Methods II
    Position: Teaching Assistant, Instructor: Dr. Sen Peng
2020   BMI 598: NLP Methods for Biomedical Text Mining
    Position: Teaching Assistant, Instructor: Dr. Murthy Devarakonda
2020   BMI 598: Imaging in Diagnostics
    Position: Teaching Assistant, Instructor: Dr. Jianming Liang
2019   BMI 507: Intro Digital Image Processing
    Position: Teaching Assistant, Instructor: Dr. Jianming Liang

Student Supervision

Jie Liu   City University of Hong Kong (PhD Student), 2022-
    Achievement: Rank First in MSD Competition
Junfei Xiao   Johns Hopkins University (PhD Student), 2022-
    Achievement: WACV'23, CVPR'23, RSNA'22
Yixiao Zhang   Johns Hopkins University (PhD Student), 2022-

	Achievement: CVPR'23
Wei Ji	University of Alberta (PhD Student), 2022-
	Achievement: CVPR'23
Shuojue Yang	Johns Hopkins University (Master Student), 2022
	Achievement: RSNA'22
Qixin Hu	Huazhong University of Science and Technology (Master Student), 2022-
	Achievement: CVPR'23, NeurIPSW'22
Yu-Cheng Chou	Wuhan University (Undergraduate), 2022-
	Achievement: RSNA'22
Yixiong Chen	Fudan University (Undergraduate), 2022-
	Achievement: ICLR'23, CVPR'23, NeurIPSW'22
Zengle Zhu	Tongji University (Undergraduate), 2022-
	Achievement: ISBI'23, NeurIPSW'22, RSNA'22
Bowen Li	Johns Hopkins University (PhD Student), 2021-
	Achievement: ISBI'23, NeurIPSW'22, RSNA'22
Tiange Xiang	University of Sydney (Undergraduate), 2021-
	Achievement: CVPR'23
Liangyu Chen	Nanyang Technological University (Undergraduate), 2021-22
	Achievement: MIDL'23, NeurIPSW'22
Mintong Kang	Zhejiang University (Undergraduate), 2021-22
	Achievement: ISBI'23, NeurIPSW'22, RSNA'22

Patents

2022	US Patent 11,328,430, Methods, Systems, And Media for Segmenting Images.
2021	US Patent 11,164,021, Methods, Systems, and Media for Discriminating and Generating Translated Images.
2021	US Patent 11,164,067, Systems, Methods, and Apparatuses for Implementing a Multi-resolution Neural Network for Use with Imaging Intensive Applications Including Medical Imaging.
2021	US Patent 10,956,785, Methods, Systems, and Media for Selecting Candidates for Annotation for Use in Training Classifiers.

Publications

*Corresponding author

Book Chapters

1. Y. Tang, J. Liu, **Z. Zhou**, Y. Huo*. "Efficient 3D representation Learning for Medical Image Analysis." Towards Realistic 3D Deep Learning: Algorithms and Applications. X. Li, X. Yang, and H. Su (eds.). World Scientific.
2. **Z. Zhou**, V. Sodha, S. Bajpai, J. Pang, M. Gotway, J. Liang*. "Models Genesis." In Deep Learning for Medical Image Analysis (2nd Edition). S. K. Zhou, H. Greenspan, D. Shen (eds.). Springer.
3. **Z. Zhou**, M. Gotway, J. Liang*. "Interpreting Medical Images." Intelligent Systems in Medicine and Health: The Role of AI. T. Cohen, V. Patel and E. Shortliffe (eds.). Springer Nature, 2022.

Peer-refereed Journal Publications

4. **Z. Zhou**, J. Shin, S. Gurudu, M. Gotway, and J. Liang*. "Active, Continual Fine Tuning of Convolutional Neural Networks for Reducing Annotation Efforts." Medical Image Analysis, 2021.
5. F. Haghighi, M. R. Hosseinzadeh Taher, **Z. Zhou**, M. Gotway, J. Liang*. "Transferable Visual Words: Exploiting the Semantics of Anatomical Patterns for Self-supervised Learning." IEEE Transactions on Medical Imaging, 2021.
6. **Z. Zhou**, V. Sodha, J. Pang, M. Gotway, and J. Liang*. "Models Genesis." Medical Image Analysis, 2020. (MedIA Best Paper Award)

7. **Z. Zhou**, M. M. Rahman Siddiquee, N. Tajbakhsh, and J. Liang*. "UNet++: Redesigning Skip Connections to Exploit Multi-Resolution Features in Image Segmentation." IEEE Transactions on Medical Imaging, 2020. (IEEE TMI Most Popular Articles)

8. **Z. Zhou**, J. Shin, R. Feng, R. Hurst, C. Kendall, and J. Liang*. "Integrating Active Learning and Transfer Learning for Carotid Intima-Media Thickness Video Interpretation." Journal of Digital Imaging, 2019.

9. H. Wang, Z. Chen, **Z. Zhou**, Y. Li, P. Lu, W. Wang, W. Liu, L. Yu*. "Evaluation of Machine Learning Classifiers for Diagnosing Mediastinal Lymph Node Metastasis of Lung Cancer from PET/CT Images." Journal of Zhejiang University (Engineering Science), 2018

10. H. Wang, **Z. Zhou**, Y. Li, Z. Chen, P. Lu, W. Wang, W. Liu, and L. Yu*. "Comparison of Machine Learning Methods for Classifying Mediastinal Lymph Node Metastasis of Non-Small Cell Lung Cancer from 18 F-FDG PET/CT Images." EJNMMI Research, 2017. (EJNMMI Research Highest-Cited Article, 2017-18)

Peer-refereed Conference Proceedings

11. L. Chen, Y. Bai, S. Huang, Y. Lu, B. Wen, A. Yuille, **Z. Zhou***. "A Guide to Your First Choice: Addressing Cold Start Problem in Vision Active Learning." Medical Imaging with Deep Learning (MIDL'23), 2023.

12. T. Xiang, Y. Zhang, Y. Lu, A. Yuille, C. Zhang, W. Cai, **Z. Zhou***. "Deep Feature In-painting for Unsupervised Anomaly Detection in X-ray Images." Conference on Computer Vision and Pattern Recognition (CVPR'23), 2023.

13. W. Ji, J. Li, B. Cheng, **Z. Zhou**, J. Zhao, A. Yuille, L. Cheng*. "Multispectral Video Semantic Segmentation: A Benchmark Dataset and Baseline." Conference on Computer Vision and Pattern Recognition (CVPR'23), 2023.

14. Q. Hu, Y. Chen, J. Xiao, S. Sun, J. Chen, A. Yuille, **Z. Zhou***. "Label-Free Liver Tumor Segmentation." Conference on Computer Vision and Pattern Recognition (CVPR'23), 2023.

15. M. Kang, B. Li, Z. Zhu, Y. Lu, E. Fishman, A. Yuille, **Z. Zhou***. "Label-Assemble: Leveraging Multiple Datasets with Partial Labels." IEEE International Symposium on Biomedical Imaging (ISBI'23), 2023.

16. Y. Chen, A. Yuille, **Z. Zhou***. "Which Layer is Learning Faster? A Systematic Exploration of Layer-wise Convergence Rate for Deep Neural Networks". International Conference on Learning Representations (ICLR'23), 2023.

17. L. Chen, Y. Bai, S. Huang, Y. Lu, B. Wen, A. Yuille, **Z. Zhou***. "A Guide to Your First Choice: Addressing Cold Start Problem in Vision Active Learning." NeurIPS Workshop on Human in the Loop Learning, 2022.

18. J. Xiao, Y. Bai, A. Yuille, **Z. Zhou***. "Delving into Masked Autoencoders for Multi-Label Chest X-ray Classification." Winter Conference on Applications of Computer Vision (WACV'23), 2023.

19. J. Xiao, L. Yu, **Z. Zhou**, Y. Bai, L. Xing, A. Yuille, Y. Zhou*. "CateNorm: Categorical Normalization for Robust Medical Image Segmentation." Domain Adaptation and Representation Transfer (DART'22), 2022. (Best Paper Award Honorable Mention, Oral Presentation)

20. J. Xiao, L. Jing, L. Zhang, J. He, Q. She, **Z. Zhou**, A. Yuille, Y. Li*. "Learning from Temporal Gradient for Semi-supervised Action Recognition." Conference on Computer Vision and Pattern Recognition (CVPR'22), 2022.

21. Y. Yao, F. Liu, **Z. Zhou**, Y. Wang, W. Shen, A. Yuille, Y. Lu*. "Unsupervised Domain Adaptation through Shape Modeling for Medical Image Segmentation." Medical Imaging with Deep Learning (MIDL'22), 2022.

22. N. Islam, S. Gehlot, **Z. Zhou**, M. Gotway, J. Liang*. "Seeking an Optimal Approach for Computer-Aided Diagnosis Pulmonary Embolism Detection." Machine Learning in Medical Imaging (MLMI'21), 2021. (Oral Presentation)

23. R. Feng, **Z. Zhou**, M. Gotway, J. Liang*. "Self-supervised Learning: From Parts to Whole." Domain Adaptation and Representation Transfer (DART'20), 2020. (Oral Presentation)

24. F. Haghighi, M. R. Hosseinzadeh Taher, **Z. Zhou**, M. Gotway, J. Liang*. "Learning Semantics-enriched Representation via Self-discovery, Self-classification, and Self-restoration." International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI'20), 2020. (Oral Presentation)

25. M. M. Rahman Siddiquee, **Z. Zhou**, R. Feng, N. Tajbakhsh, M. Gotway, Y. Bengio, and J. Liang*. "Learning Fixed Points in Generative Adversarial Networks: From Image-to-Image Translation to Disease Detection and Localization." International Conference on Computer Vision (ICCV'19), 2019.

26. **Z. Zhou**, V. Sodha, M. M. Rahman Siddiquee, R. Feng, N. Tajbakhsh, M. Gotway, and J. Liang*. "Models Genesis: Generic Autodidactic Models for 3D Medical Image Analysis." International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI'19), 2019. (Young Scientist Award; Young Scientist Publication Impact Award Finalist; Oral Presentation)

27. **Z. Zhou**, M. M. Rahman Siddiquee, N. Tajbakhsh, and J. Liang*. "UNet++: A Nested U-Net Architecture for Medical Image Segmentation." Deep Learning in Medical Image Analysis (DLMIA'18), 2018. (Oral Presentation)

28. **Z. Zhou**, J. Shin, L. Zhang, S. Gurudu, M. Gotway, and J. Liang*. "Fine-tuning Convolutional Neural Networks for Biomedical Image Analysis: Actively and Incrementally." Conference on Computer Vision and Pattern Recognition (CVPR'17), 2017.

Peer-refereed Conference Abstracts

29. Q. Hu, J. Xiao, Y. Chen, S. Sun, J. Chen, A. Yuille, **Z. Zhou***. "Synthetic Tumors Make AI Segment Tumors Better". NeurIPS Workshop on Medical Imaging Meets NeurIPS, 2022.
30. Z. Zhu, M. Kang, A. Yuille, **Z. Zhou***. "Leveraging Existing Labels from Public Datasets for Novel Diseases: Identifying COVID-19 in Late 2019". NeurIPS Workshop on Medical Imaging Meets NeurIPS, 2022.
31. J. Xiao, Y. Bai, A. Yuille, **Z. Zhou***. "Transforming Radiograph Imaging with Transformers: Comparing Vision Transformers with Convolutional Neural Networks in Multi-Label Thorax Disease Classification." Radiological Society of North America (RSNA), 2022. (Oral Presentation)
32. Z. Zhu, M. Kang, A. Yuille, **Z. Zhou***. "Assembling and Exploiting Large-scale Existing Labels of Common Thorax Diseases for Improved COVID-19 Classification Using Chest Radiographs." Radiological Society of North America (RSNA), 2022. (Oral Presentation)
33. Y. Chou, D. Fan, A. Yuille, **Z. Zhou***. "Determining Effective and Efficient Annotation Strategies to Curate Large-scale Colonoscopy Video Datasets for Polyp Detection." Radiological Society of North America (RSNA), 2022. (Oral Presentation)
34. S. Yang, B. Li, F. Liu, J. Chen, …, E. Fishman, A. Yuille, **Z. Zhou***. "Pancreatic Ductal Adenocarcinoma (PDAC) Detection Using Per-Slice Annotation." Radiological Society of North America (RSNA), 2022. (Oral Presentation)
35. Y. Xia, Q. Yu, L. Chu, S. Kawamoto, …, **Z. Zhou**, …, B. Vogelstein, A. Yuille, E. Fishman*. "AI Algorithms Can Assist Radiologists in Early Detection of Pancreatic Neoplasms Through Venous and Arterial CT Imaging." Radiological Society of North America (RSNA), 2022. (Oral Presentation)
36. Y. Xia, Q. Yu, L. Chu, S. Kawamoto, …, **Z. Zhou**, …, B. Vogelstein, A. Yuille, E. Fishman*. "Generalizing AI Algorithms to Abdominal CT Scans Taken from Different Hospitals for Pancreatic Ductal Adenocarcinoma Detection." Radiological Society of North America (RSNA), 2022. (Oral Presentation)
37. **Z. Zhou**, Z. Akkus, M. S. Warner, M. N. Stan, J. Liang, and B. J. Erickson*. "A Preliminary Study of Using Machine Learning to Reduce Biopsies of Thyroid Nodules Based on Ultrasound Images." The 2nd SIIM Conference on Machine Intelligence in Medical Imaging, 2017.
38. P. D. Korfiatis, **Z. Zhou**, J. Liang, and B. J. Erickson*. "Fully Automated IDH Mutation Prediction in MRI Utilizing Deep Learning." The 2nd SIIM Conference on Machine Intelligence in Medical Imaging, 2017.
39. **Z. Zhou**, J. Shin, R. T. Hurst, C. B. Kendall, and J. Liang*. "Integrating Active Learning and Transfer Learning for Carotid Intima-Media Thickness Video Interpretation." The 2nd SIIM Conference on Machine Intelligence in Medical Imaging, 2017.
40. L. Zhang, **Z. Zhou**, H. Siddiki, N. S. Madiraju, F. C. Ramirez, S. R. Gurudu, and J. Liang*. "Approaching Medical Fellow-Level Performance on Colonoscopy Frame Classification with Deep Neural Networks." WP Time, the 82rd Annual Meeting, 2017.

Preprints

41. Y. Xia, Q. Yu, L. Chu, S. Kawamoto, …, **Z. Zhou**, …, B. Vogelstein*, A. Yuille*, E. Fishman*. "The Felix Project: Deep Networks To Detect Pancreatic Neoplasms". medRxiv, 2022
42. J. Chen, J. Chen, **Z. Zhou**, A. Yuille, Y. Lu*. "MT-TransUNet: Mediating Multi-Task Tokens in Transformers for Skin Lesion Segmentation and Classification." arXiv preprint arXiv:2112.01767, 2021.

Software

1. CLIP-Driven Universal Model for Organ Segmentation and Tumor Detection (Top 1 in MSD)
   GitHub: https://github.com/ljwztc/CLIP-Driven-Universal-Model
2. Label-Free Liver Tumor Segmentation (CVPR 2023)
   GitHub: https://github.com/MrGiovanni/SyntheticTumors
3. Deep Feature In-painting for Unsupervised Anomaly Detection in X-ray Images (CVPR 2023)
   GitHub: https://github.com/tiangexiang/SQUID
4. A Guide to Your First Choice: Addressing Cold Start Problem in Vision Active Learning (MIDL 2023)

GitHub: https://github.com/c-liangyu/CSVAL
5. Models Genesis (MedIA 2020)
   GitHub: https://github.com/MrGiovanni/ModelsGenesis
6. UNet++: Redesigning Skip Connections to Exploit Multi-Resolution Features in Image Segmentation (TMI 2019)
   GitHub: https://github.com/MrGiovanni/UNetPlusPlus

References

Alan L. Yuille   Bloomberg Distinguished Professor, Johns Hopkins University; ayuille1@jhu.edu
Jianming Liang   Associate Professor, Arizona State University; Jianming.Liang@asu.edu
Edward H. Shortliffe   Chair Emeritus & Adjunct Professor, Columbia University; ted@shortliffe.net
Robert Greenes   Professor Emeritus, Arizona State University; greenes@asu.edu
Hongkai Wang   Associate Professor, Dalian University of Technology; wang.hongkai@dlut.edu.cn
Baoxin Li   Professor & Chair, Arizona State University; Baoxin.Li@asu.edu
Elliot K Fishman   Professor, Johns Hopkins Medicine; efishman@jhmi.edu
Bert Vogelstein   Clayton Professor, Johns Hopkins Medicine; vogelbe@jhmi.edu
S. Kevin Zhou   Professor, University of Science and Technology of China; s.kevin.zhou@gmail.com
Murthy Devarakonda   Research Professor, Arizona State University; Murthy.Devarakonda@asu.edu