

Shishuai Hu 胡诗帅

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Research Interests

Medical image analysis and AI for healthcare, with a particular focus on **generalizable and adaptable medical image segmentation**, including **domain and task generalization/adaptation**.

Education

Northwestern Polytechnical University (NPU)	Xi'an, China
Ph.D. Candidate in School of Computer Science and Engineering	2020/09 – 2026/06
Supervisor: Prof. Yong Xia	
Visiting Student at IHPC, A*STAR, Singapore	2024/09 – 2025/08
Co-supervisor: Dr. Huazhu Fu, Dr. Liangli Zhen	
Northwestern Polytechnical University (NPU)	Xi'an, China
B.E. in Honors College	2016/09 - 2020/07
Supervisor: Prof. Yong Xia	

Publications

- [1] **Shishuai Hu**, Zehui Liao, Jianpeng Zhang, and Yong Xia*. “Domain and Content Adaptive Convolution based Multi-Source Domain Generalization for Medical Image Segmentation”, *IEEE Transactions on Medical Imaging*, vol. 42, no. 1, pp. 233-244, Jan. 2023. (IF=9.8)
- [2] **Shishuai Hu**, Zehui Liao, and Yong Xia*. “Source-free Domain Adaptation Using Prompt Learning for Medical Image Segmentation”, *Pattern Recognition*, vol. 171, Part B, 112290, Mar. 2026. (IF=7.6)
- [3] **Shishuai Hu**, Zehui Liao, Liangli Zhen, Huazhu Fu*, and Yong Xia*. “Cycle Context Verification for In-Context Medical Image Segmentation”, *MICCAI 2025*.
- [4] **Shishuai Hu**, Zehui Liao, and Yong Xia*. “Devil is in Channels: Contrastive Single Domain Generalization for Medical Image Segmentation”, *MICCAI 2023*. (Early Accept)
- [5] **Shishuai Hu**, Zehui Liao, and Yong Xia*. “Domain Specific Convolution and High Frequency Reconstruction based Unsupervised Domain Adaptation for Medical Image Segmentation”, *MICCAI 2022*.
- [6] Zehui Liao[#], **Shishuai Hu**[#], Yutong Xie, and Yong Xia*. “Modeling Annotator Preference and Stochastic Annotation Error for Medical Image Segmentation”, *Medical Image Analysis*, vol. 92, pp. 103028, Feb. 2024. (IF=11.8)
- [7] Zehui Liao[#], **Shishuai Hu**[#], Ke Zou, Huazhu Fu, Liangli Zhen*, and Yong Xia*. “Vision-Amplified Semantic Entropy for Hallucination Detection in Medical Visual Question Answering”, *MICCAI 2025*.
- [8] **Shishuai Hu**, Zehui Liao, Yiwen Ye, and Yong Xia*. “Boundary-Aware Network for Kidney Parsing”, *MICCAI 2022 Workshop (KiPA)*. (Innovation Award in KiPA22 Challenge, Oral)

- [9] **Shishuai Hu**, Jianpeng Zhang, and Yong Xia*. “Boundary-aware network for kidney tumor segmentation”, *MICCAI 2020 Workshop (MLMI)*. (*Oral*)

Under Review

- [1] **Shishuai Hu**, Zehui Liao, Liangli Zhen, Huazhu Fu*, and Yong Xia*. X-Seg: Cross-Dimensional Task Specification for Volumetric Medical Image Segmentation, Under Review
- [2] Guoqing Yang[#], **Shishuai Hu**[#], and Yong Xia*. Learning Task-Specific Anatomical Priors via Context Distillation for In-Context Medical Image Segmentation, Under Review
- [3] Guoqing Yang[#], **Shishuai Hu**[#], and Yong Xia*. Bias-Aware Context Adaptation for In-Context Medical Image Segmentation, Under Review

Grants

- **National Natural Science Foundation of China**

Collaborative Chest X-ray Diagnosis with Self-Integration and Domain Adaptation

Duration: 2022/01 – 2025/12 | Total Funding: CNY 640,000 | Grant Number: 62171377

Project member, responsible for developing domain adaptive classification models.

- **Innovation Foundation for Doctor Dissertation of Northwestern Polytechnical University**

Cross-center Domain Adaptive Medical Image Segmentation

Duration: 2023/01 – 2024/12 | Total Funding: CNY 60,000 | Grant Number: CX2023016

Project leader, mainly responsible for project management and development.

Awards and Honors

1. **National Scholarship of China** for PhD Students (2024)
2. **Chinese Government Scholarship (CSC)**, 2024
3. **Outstanding Graduate Student** of Northwestern Polytechnical University (2022, 2023)
4. **First-class Academic Scholarship** for Doctoral Students (2020, 2022)
5. **First Place** in COVID-19-20 Lung CT Lesion Segmentation Challenge (COVID-19-20)
6. **Innovation Award and Second Place** in MICCAI 2022 Kidney Parsing Challenge (KiPA 2022)
7. **Second Place** in MICCAI 2022 Carotid Vessel Wall Segmentation and Atherosclerosis Diagnosis Challenge (COSMOS 2022)
8. **Top-5** in MICCAI 2022 Multi-Modality Abdominal Multi-Organ Segmentation Challenge (AMOS 2022)
9. **Third Place** in ISICDM 2020 Acceleration of MR Imaging Challenge
10. **MICCAI Undergraduate Student Travel Award (2019)**

Academic Activities

Presentations

1. **Poster Presentation:** Cycle Context Verification for In-Context Medical Image Segmentation, at MICCAI 2025, 2025/09/23-27, South Korea.
2. **Poster Presentation:** Devil is in Channels: Contrastive Single Domain Generalization for Medical Image Segmentation, at MICCAI 2023, 2023/10/08-12, Canada.

3. **Poster Presentation:** Domain Specific Convolution and High Frequency Reconstruction based Unsupervised Domain Adaptation for Medical Image Segmentation, at MICCAI 2022, 2022/09/18-22, Singapore.
4. **Oral Presentation:** Boundary-Aware Network for Kidney Parsing, at MICCAI 2022 Workshop – KiPA22, 2022/09/18-22, Singapore.
5. **Oral Presentation:** Boundary-aware Network for Abdominal Multi-organ Segmentation, at MICCAI 2022 Workshop – AMOS22, 2022/09/18-22, Singapore.
6. **Poster Presentation:** Domain Specific Convolution and High Frequency Reconstruction based Unsupervised Domain Adaptation for Medical Image Segmentation, at the 12th Vision and Learning Seminar (VALSE 2022), 2022/08/22-24, Tianjin, China.
7. **Student Challenge Presentation:** Domain Specific Convolution and High Frequency Reconstruction based Unsupervised Domain Adaptation for Medical Image Segmentation (**Second Prize**), at the 9th Medical Imaging Computing Seminar (MICS 2022), 2022/08/11-13, Nanjing, China.
8. **Oral Presentation:** Semi-supervised Method for COVID-19 Lung CT Lesion Segmentation, at the COVID-19 Lung CT Lesion Segmentation Challenge Mini-symposium, 2021/01/10, Online.
9. **Oral Presentation:** Boundary-aware network for kidney tumor segmentation, at MICCAI 2020 Workshop – MLMI, 2020/10/04-08, Peru.

Conference and Journal Reviews

MICCAI 2023-2026, ISBI 2025, ICML 2026

IEEE-TMI, IEEE-TIP, IEEE-TNNLS, IEEE-JBHI, IEEE-TCSVT, IJCV, MedIA, AIIM, PR, KBS

Referees

Prof. Yong Xia

Professor and Deputy Dean (Postgraduate), School of Artificial Intelligence

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Dr. Huazhu Fu

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