

Xiangde Luo, PhD student

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Bio: Xiangde focuses on data-efficient medical image analysis, such as self-supervised learning, semi-supervised learning, weakly-supervised learning, active learning and human-in-the-loop and applies them to clinical applications, especially in radiotherapy. Recently, he led some impact projects in the medical image analysis community: 1) built a semi-supervised medical image segmentation benchmark **SSL4MIS** with ~ 2000 stars on GitHub; 2) organized a challenge **SegRap2023** in conjunction with MICCAI; 3) released a large scale abdominal organ segmentation dataset **WORD**. He has published several top-tier journals or conferences and these works were cited > 4300 times (**four 1st authored papers > 100**), the **h-index** is **16**.

Education

- 2018 – 2024 **Ph.D., School of Mechanical and Electrical Engineering, University of Electronic Science and Technology of China. Supervisor: Prof. Shaoting Zhang**
Thesis title: *Medical Image Segmentation with Limited Labeled Data.*
- 2014 – 2018 **B.E., School of Mechanical and Electrical Engineering, University of Electronic Science and Technology of China. Supervisor: Prof. Shaoting Zhang**
Thesis title: *Data capture using crawl and its applications*

Employment History

- 2019 – 2021 **Research Intern** SenseTime Research, **Mentor: Dr. Tao Song**
- 2021 – 2024 **Research Intern** Shanghai AI Laboratory, **Mentor: Prof. Xiaofan Zhang**

Highlight Publications

Journal Articles

- 1 H. Wang, ..., and **X. Luo**, "Dual-reference source-free active domain adaptation for nasopharyngeal carcinoma tumor segmentation across multiple hospitals," *arXiv preprint arXiv:2309.13401*, 2024.
- 2 W. Liao, **X. Luo**, Y. He, *et al.*, "Comprehensive evaluation of a deep learning model for automatic organs-at-risk segmentation on heterogeneous computed tomography images for abdominal radiation therapy," *International Journal of Radiation Oncology* Biology* Physics*, vol. 117, no. 4, pp. 994–1006, 2023.
- 3 **X. Luo**, J. Fu, Y. Zhong, *et al.*, "SegRap2023: A benchmark of organs-at-risk and gross tumor volume segmentation for radiotherapy planning of nasopharyngeal carcinoma," *arXiv preprint arXiv:2312.09576*, 2023.
- 4 **X. Luo**, W. Liao, Y. He, *et al.*, "Deep learning-based accurate delineation of primary gross tumor volume of nasopharyngeal carcinoma on heterogeneous magnetic resonance imaging: A large-scale and multi-center study," *Radiotherapy and Oncology*, vol. 180, p. 109 480, 2023.
- 5 **X. Luo**, W. Liao, J. Xiao, *et al.*, "Word: A large scale dataset, benchmark and clinical applicable study for abdominal organ segmentation from ct image," *Medical Image Analysis*, vol. 82, p. 102 642, 2022.
- 6 **X. Luo**, T. Song, G. Wang, *et al.*, "SCPM-Net: An anchor-free 3d lung nodule detection network using sphere representation and center points matching," *Medical Image Analysis*, vol. 75, p. 102 287, 2022.
- 7 **X. Luo**, G. Wang, W. Liao, *et al.*, "Semi-supervised medical image segmentation via uncertainty rectified pyramid consistency," *Medical Image Analysis*, vol. 80, p. 102 517, 2022.

- 8 X. Luo, G. Wang, T. Song, *et al.*, "MIDeepSeg: minimally interactive segmentation of unseen objects from medical images using deep learning," *Medical Image Analysis*, vol. 72, p. 102 102, 2021.

Conference Proceedings

- 1 M. Han, X. Luo, W. Liao, S. Zhang, S. Zhang, and G. Wang, "Scribble-based 3d multiple abdominal organ segmentation via triple-branch multi-dilated network with pixel-and class-wise consistency," in *International Conference on Medical Image Computing and Computer-Assisted Intervention*, Springer, 2023, pp. 33–42.
- 2 X. Luo, M. Hu, W. Liao, *et al.*, "Scribble-supervised medical image segmentation via dual-branch network and dynamically mixed pseudo labels supervision," in *International Conference on Medical Image Computing and Computer-Assisted Intervention*, Springer, 2022, pp. 528–538.
- 3 X. Luo, M. Hu, T. Song, G. Wang, and S. Zhang, "Semi-supervised medical image segmentation via cross teaching between cnn and transformer," in *International Conference on Medical Imaging with Deep Learning*, PMLR, 2022, pp. 820–833.
- 4 X. Luo, J. Chen, T. Song, and G. Wang, "Semi-supervised medical image segmentation through dual-task consistency," in *Proceedings of the AAAI conference on artificial intelligence*, vol. 35, 2021, pp. 8801–8809.
- 5 X. Luo, W. Liao, J. Chen, *et al.*, "Efficient semi-supervised gross target volume of nasopharyngeal carcinoma segmentation via uncertainty rectified pyramid consistency," in *International Conference on Medical Image Computing and Computer-Assisted Intervention*, Springer, 2021, pp. 318–329.

Skills

Languages	Strong academic reading and writing competencies in English and Chinese.
IT and Coding	Python, PyTorch, TensorFlow, R, Linux.
Deep learning	Self-/Semi-/Weakly-Supervised Learning, Active Learning, Human-in-the-loop.
Medical Images	SimpleITK, Radiomics, 3D Slicer, ITK-SNAP.

Academic Experience and Achievements

Awards and Achievements

- 2023 TMI Distinguished Reviewer
- 2022 MICCAI Student Travel Award

Journals/Conferences Review

Journals	TPAMI, MedIA, TMI, TNNLS, TGRS, PR, JBHI
Conferences	MICCAI2021, MICCAI2022, MICCAI2023

Open Source Projects

DTC	https://github.com/HiLab-git/DTC (> 260 stars)
WORD	https://github.com/HiLab-git/WORD (> 100 stars)
SSL4MIS	https://github.com/HiLab-git/SSL4MIS (~ 2000 stars)
WSL4MIS	https://github.com/HiLab-git/WSL4MIS (> 170 stars)
MIDeepSeg	https://github.com/HiLab-git/MIDeepSeg (> 100 stars)