Xiangde Luo, PhD student

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Bio: Xiangde focuses on annotation-efficient medical image analysis, such as self-supervised, semi-supervised, weakly-supervised, active learning and human-in-the-loop and applies them to clinical applications, especially AI for radiotherapy. Recently, he promoted some interesting projects in the MICCAI 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 journals or conferences and these works were cited > **4800** times (**four 1st authored papers** > 100), ***h, i10***-index are **16, 22**, respectively.

Education

2018 – 2024 **Ph.D., University of Electronic Science and Technology of China (*UESTC*).**
Supervisor: *Prof. Shaoting Zhang*
Thesis title: *Medical Image Segmentation Using a Limited Amount of Labeled Data.*

2014 – 2018 **B.E., University of Electronic Science and Technology of China (*UESTC*).**
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**
Scholarship	**2021/2023 second class, 2022 first class**

Journals/Conferences Review

Journals	**TPAMI, MedIA, TMI, TNNLS, TGRS, PR, JBHI**
Conferences	**MICCAI2021, MICCAI2022, MICCAI2023, AAAI2022, AAAI2023**

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)