# Xiangde Luo, PhD

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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 more than 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 > **5100** times (**four of them citations > 100**), *h, i10*-index are **17, 22**, respectively.

## Education

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| 2018-09 – 2024-06 | 🔖 **Ph.D., University of Electronic Science and Technology of China (*UESTC*)**<br>**Supervisor:** *Prof. Shaoting Zhang*<br>Thesis title: *Medical Image Segmentation Using a Limited Amount of Labeled Data* |
| 2014-09 – 2018-06 | 🔖 **B.E., University of Electronic Science and Technology of China (*UESTC*)**<br>**Supervisor:** *Prof. Shaoting Zhang*<br>Thesis title: *Data capture using crawl and its applications* |

## Employment History

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| 2019-07 – 2020-06 | 🔖 **Research Intern** SenseTime Research, **Mentor:** *Dr. Tao Song* |
| 2021-06 – 2024-06 | 🔖 **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," *IEEE Transactions on Medical Imaging, (Accepted)*, 2024. **Corresponding author**.

2. **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," *Submitted to Medical Image Analysis, (**Under Review**)*, 2023. **Challenge report, organized in conjunction with MICCAI2023**.

3. **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. ***ESI Highly Cited Papers***.

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, 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. **Y. Wu\***, **X. Luo\***, Z. Xu, *et al.*, "Diversified and personalized multi-rater medical image segmentation," in *IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2024. **Co-first authors**.

2. **X. Luo**, Z. Li, W. Liao, S. Zhang, and G. Wang, "Rethinking abdominal organ segmentation (RAOS) in the clinical scenario: A robustness evaluation benchmark with challenging cases," in *International Conference on Medical Image Computing and Computer-Assisted Intervention (Early Accept)*, 2024.

3. **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.

4. **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.

5. **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.

6. **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

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| 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

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| 2023 | **TMI Distinguished Reviewer** |
| 2022 | **MICCAI Student Travel Award** |
| Scholarship | **2020 third class, 2021/2023 second class, 2022 first class** |

### Journals/Conferences Review

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| Journals | **TPAMI, MedIA, TMI, TNNLS, TGRS, PR, JBHI** |
| Conferences | **MICCAI2021, MICCAI2022, MICCAI2023, MICCAI2024, AAAI2022, AAAI2023** |

### Open Source Projects

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| DTC | `https://github.com/HiLab-git/DTC` ($>$ 270 stars) |
| WORD | `https://github.com/HiLab-git/WORD` ($>$ 130 stars) |
| SSL4MIS | `https://github.com/HiLab-git/SSL4MIS` ($>$ 2000 stars) |
| WSL4MIS | `https://github.com/HiLab-git/WSL4MIS` ($>$ 180 stars) |
| MIDeepSeg | `https://github.com/HiLab-git/MIDeepSeg` ($>$ 110 stars) |