## Appendix

Fig. 1 gives some examples of segmentation results by VM [1], Sli2Vol [7], Vol2Flow [2], and our method on on the Decath-Liver, Decath-Spleen, Decath-Heart, and Decath-Brain Tumours datasets [5], with GT given as reference. From the visual segmentation results, we can observe that the segmentation results produced by our method are significantly better than those produced by the known mask propagation methods on all the four datasets. In particular, our method generates accurate segmentation results, while the other mask propagation methods generate false negatives on the Decath-Liver and Decath-Brain Tumours datasets. This demonstrates the effectiveness of our method.

Fig. 2 presents some visual results from various segmentation foundation models (i.e., SAM [3] and Med-SAM [4]) or interactive segmentation tools (i.e., ScribblePrompt [6]) on the Decath-Liver, Decath-Spleen, and Decath-Heart datasets [5]. From the visual segmentation results, we can observe that the segmentation results produced by ScribblePrompt [6] are better than those produced by the known segmentation foundation models on all the three datasets. Fig. 3 shows some examples of segmentation results generated by our method when combining different key components on the Decath-Liver and Decath-Spleen datasets [5]. From the visual segmentation results, we can observe that the segmentation results are improved when different key components are combined. This demonstrates the effectiveness of the proposed components.



Figure 1. Examples of segmentation results by different methods on the Decath-Liver, Decath-Spleen, Decath-Heart, and Decath-Brain Tumours datasets [5].



Figure 2. Examples of segmentation results by various segmentation foundation models or interactive segmentation tools on the Decath-Liver, Decath-Spleen, and Decath-Heart datasets [5].



Figure 3. Examples of segmentation results generated by our method when combining different key components on the Decath-Liver and Decath-Spleen datasets [5].

## References

- Guha Balakrishnan, Amy Zhao, Mert R Sabuncu, John Guttag, and Adrian V Dalca. VoxelMorph: A learning framework for deformable medical image registration. *IEEE Transactions* on Medical Imaging, 38(8):1788–1800, 2019.
- [2] Adeleh Bitarafan, Mohammad Farid Azampour, Kian Bakhtari, Mahdieh Soleymani Baghshah, Matthias Keicher, and Nassir Navab. Vol2Flow: Segment 3D volumes using a sequence of registration flows. In *International Conference* on Medical Image Computing and Computer-assisted Intervention, pages 609–618, 2022. 1
- [3] Alexander Kirillov, Eric Mintun, Nikhila Ravi, Hanzi Mao, Chloe Rolland, Laura Gustafson, Tete Xiao, Spencer Whitehead, Alexander C Berg, Wan-Yen Lo, et al. Segment anything. arXiv preprint arXiv:2304.02643, 2023. 1
- [4] Jun Ma and Bo Wang. Segment anything in medical images. arXiv preprint arXiv:2304.12306, 2023.
- [5] Amber L Simpson, Michela Antonelli, Spyridon Bakas, et al. A large annotated medical image dataset for the development and evaluation of segmentation algorithms. *arXiv preprint* arXiv:1902.09063, 2019. 1

- [6] Hallee E. Wong, Marianne Rakic, John Guttag, and Adrian V. Dalca. ScribblePrompt: Fast and flexible interactive segmentation for any biomedical image. arXiv:2312.07381, 2024. 1
- [7] Pak-Hei Yeung, Ana IL Namburete, and Weidi Xie. Sli2Vol: Annotate a 3D volume from a single slice with self-supervised learning. In *International Conference on Medical Image Computing and Computer-assisted Intervention*, pages 69–79, 2021. 1