*Literature review : contemporary medical image segmentation methods

Some notable papers

Those with the asterisk mark (*) preceding the paper title has python implementation with the papers.

- **(1) *Superpixel-guided Iterative Learning from Noisy Labels for Medical Image Segmentation**
  - Paper Link : Link (Arxiv)
  - Github Link : Link (Github)
  - Journal : MICCA (Review : Link)
  - **Note** : Reviewer #2 said that the method that this paper conducted was done by a previous paper (Paper (2)) - using superpixel representation for image segmentation with noisy labels. This paper was unclear of the novelty as compared to the prior work in paper (2).

- **(2) Un-supervised and semi-supervised hand segmentation in egocentric images with noisy label learning.**
  - Paper Link : Link (Science Direct)
  - Journal : Neurocomputing - Elsevier
  - **Note** : Just a supporting paper of (1), not related to medical image segmentation.

- **(3) *MSRF-Net: A Multi-Scale Residual Fusion Network for Biomedical Image Segmentation**

- Paper Link : Link (Arxiv)
- Github Link : Link (Github)
- Journal : IEEE Journal of Biomedical and Health Informatics
- **Note** : One of SOTA methods.

- **(4) OASIS: One-pass aligned Atlas Set for Medical Image Segmentation**
  - Paper Link : Link (Arxiv)
  - Journal : Neurocomputing - Elsevier

- **(5) *CaraNet: Context Axial Reverse Attention Network for Segmentation of Small Medical Objects**
  - Paper Link : Link (Arxiv)
  - Github Link : Link (Github)
  - Journal : SPIE Medical Imaging
  - **Note** : One of the SOTA methods.

- **(6) *A Spatial Guided Self-supervised Clustering Network for Medical Image Segmentation**
  - Paper Link : Link (Arxiv)
  - Github Link : Link (Github)
  - Journal : MICCAI
  - **Note** : Very highly reviewed on MICCAI reviewers page. Clear and organized.

- **(7) *CBAM: Convolutional Block Attention Module**
  - Paper Link : Link (Arxiv)
  - Github Link : Link (Github)
  - Journal : NaN
  - **Note** : Just some food for thoughts - how about we adopt an attention based neural network like this paper.

- **(8) *Bi-Directional ConvLSTM U-Net with Densley Connected Convolutions**
  - Paper Link : [Link (Arxiv)](Bi-Directional ConvLSTM U-Net with Densley Connected Convolutions)
  - Github Link : Link (Github)

Some keywords to research

- Superpixel representation for image segmentation.
  - *Superpixel is essentially a group of image pixels that share common characteristics (Like color intensity). It is useful in many computer vision tasks like segmentation and object detection.*
  - Reference link : Link
- Iterative learning.
  - In the context of the "Superpixel-guided Iterative Learning from Noisy Labels for Medical Image Segmentation" paper, the term "iterative learning scheme" was referred to when the superpixel patches was iteratively selected to refine the labels.
- Attention and transformers.

Other Notes :

- One thing I realized is that most of the SOTA papers mention transformers and attention based network a lot. Which makes sense in a way because there is a resemblance between the transformer and the U-Net architecture - both are "encoder-decoder" kind of architectures. But I wonder what are there to make attention-based so popular.