Weakly Supervised Histopathology Image Segmentation

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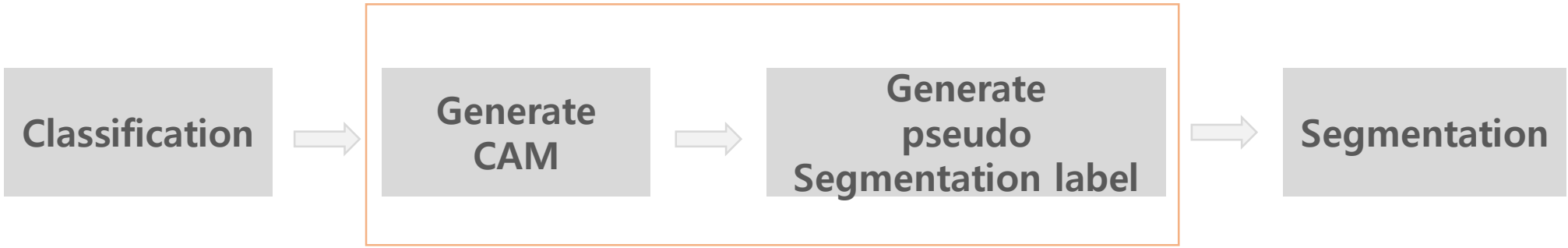
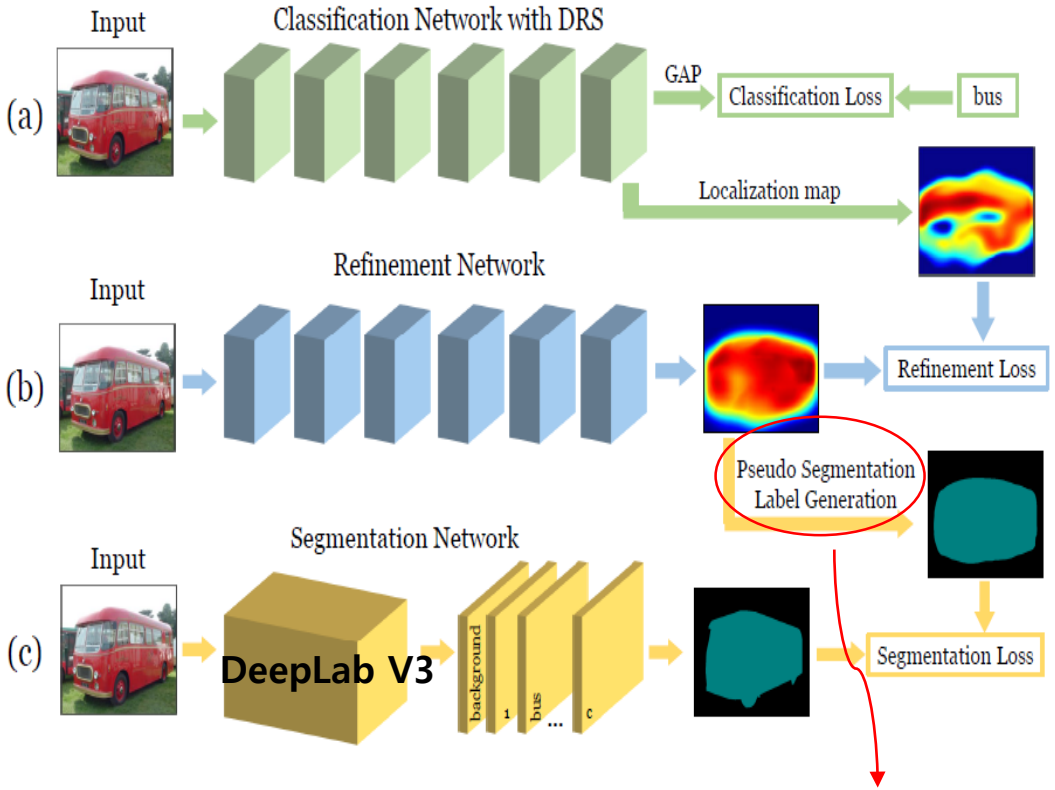
0. Weakly-Supervised Semantic Segmentation

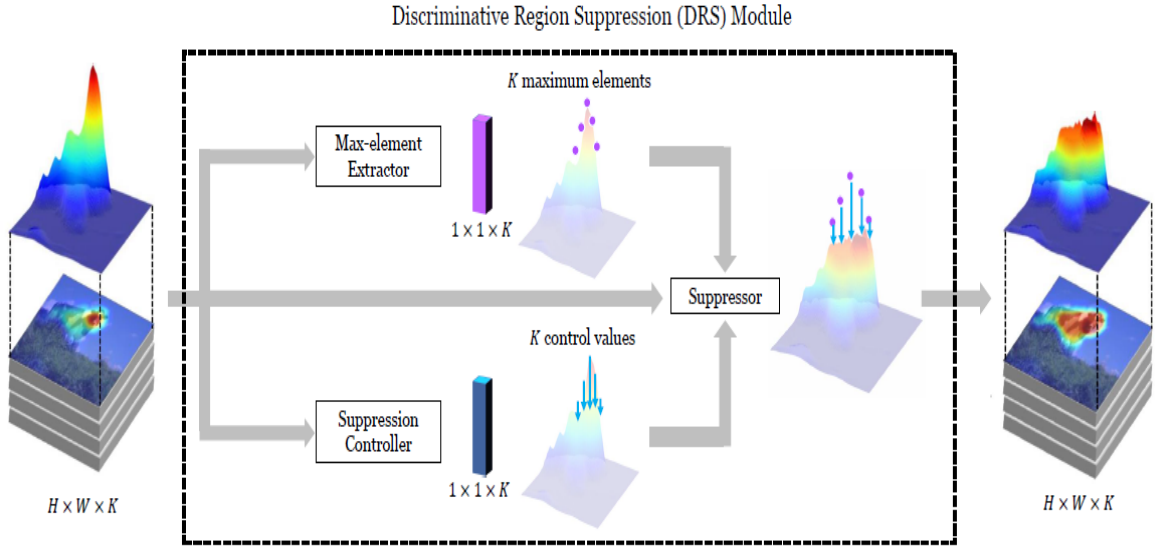


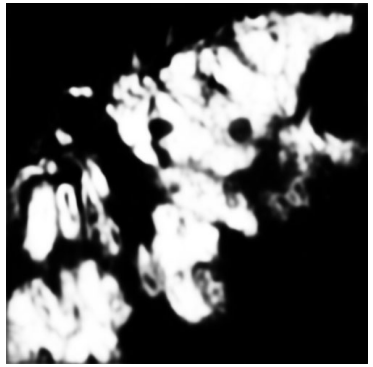
- Multiple Instance Learning
- Self-supervised Learning

1. **DRS** (Discriminative Region Suppression for Weakly-Supervised Semantic Segmentation)



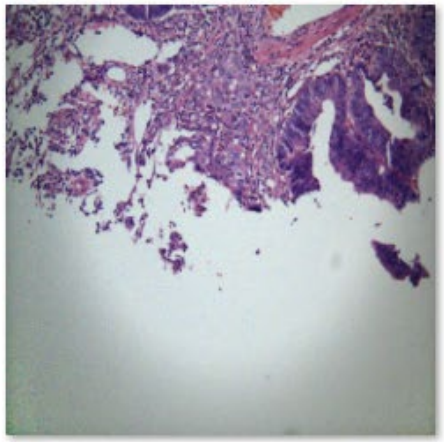
Object cues / Background cues from Salient object detection



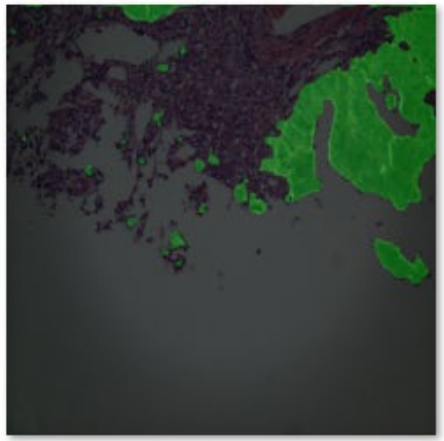


Saliency map

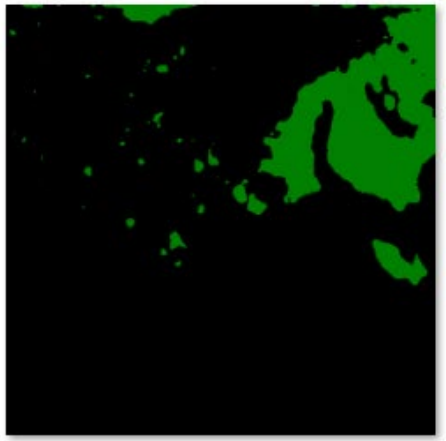
1. **DRS** (Discriminative Region Suppression for Weakly-Supervised Semantic Segmentation)



image



overlay



pred

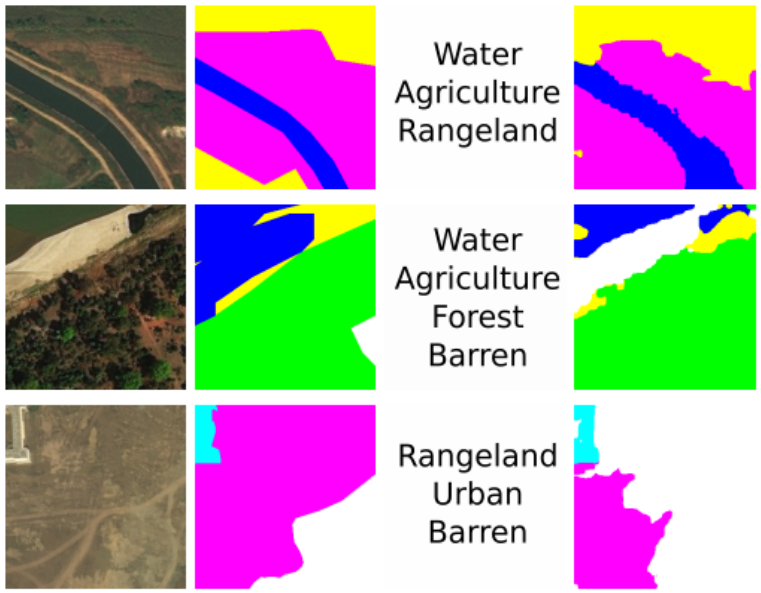
target

Mean IOU: 0.29

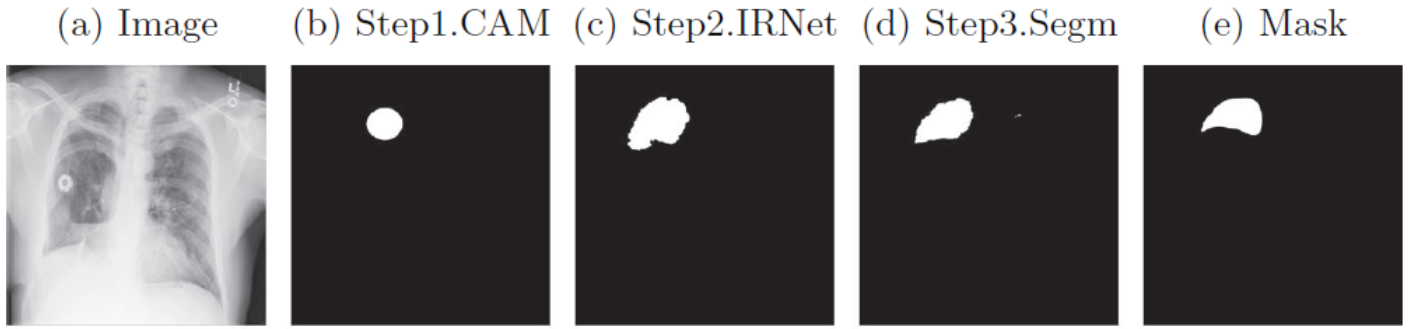
- **need ground-truth segmentation line for making saliency map**
- tends to capture dark spots.
- often segment to the background

2. **IRN** (Weakly Supervised Segmentation with Inter-pixel Relations)

< Satellite Images > mIoU : 0.459



< Chest X-Ray Images > mIoU : 0.646



2. **IRN** (Weakly Supervised Segmentation with Inter-pixel Relations)

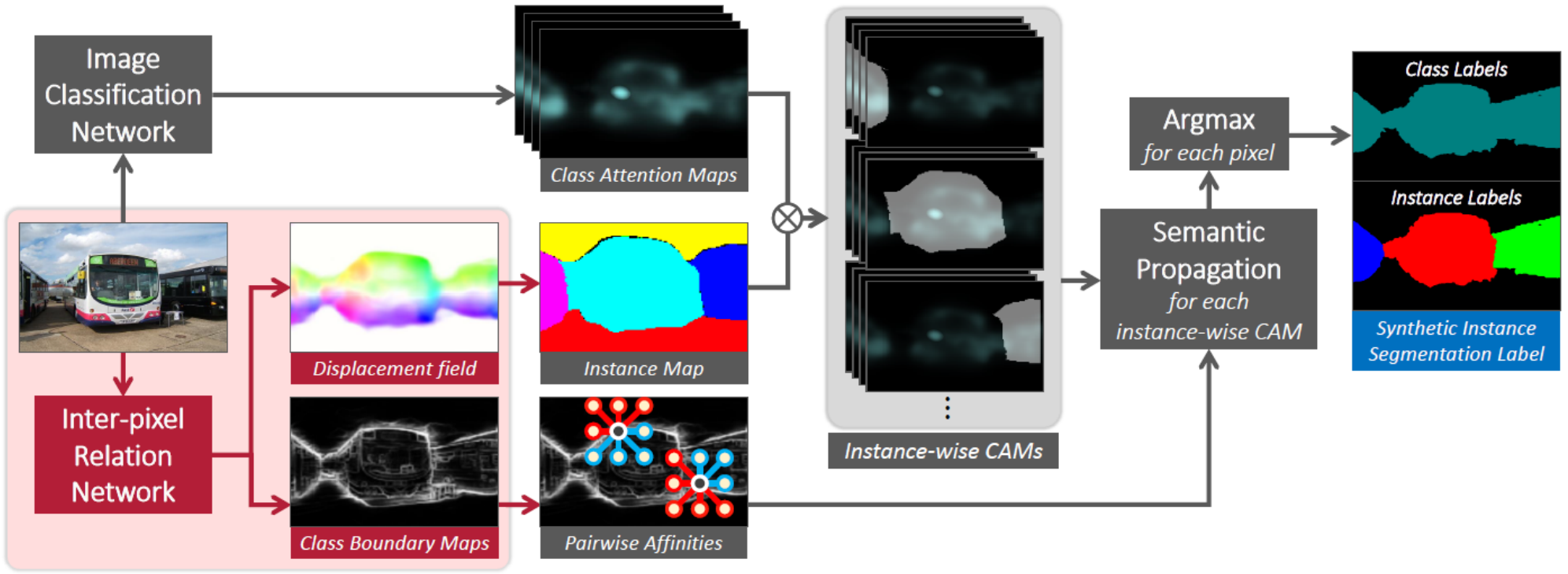


Figure 1. Overview of our framework for generating pseudo instance segmentation labels.

2. **IRN** (Weakly Supervised Segmentation with Inter-pixel Relations)

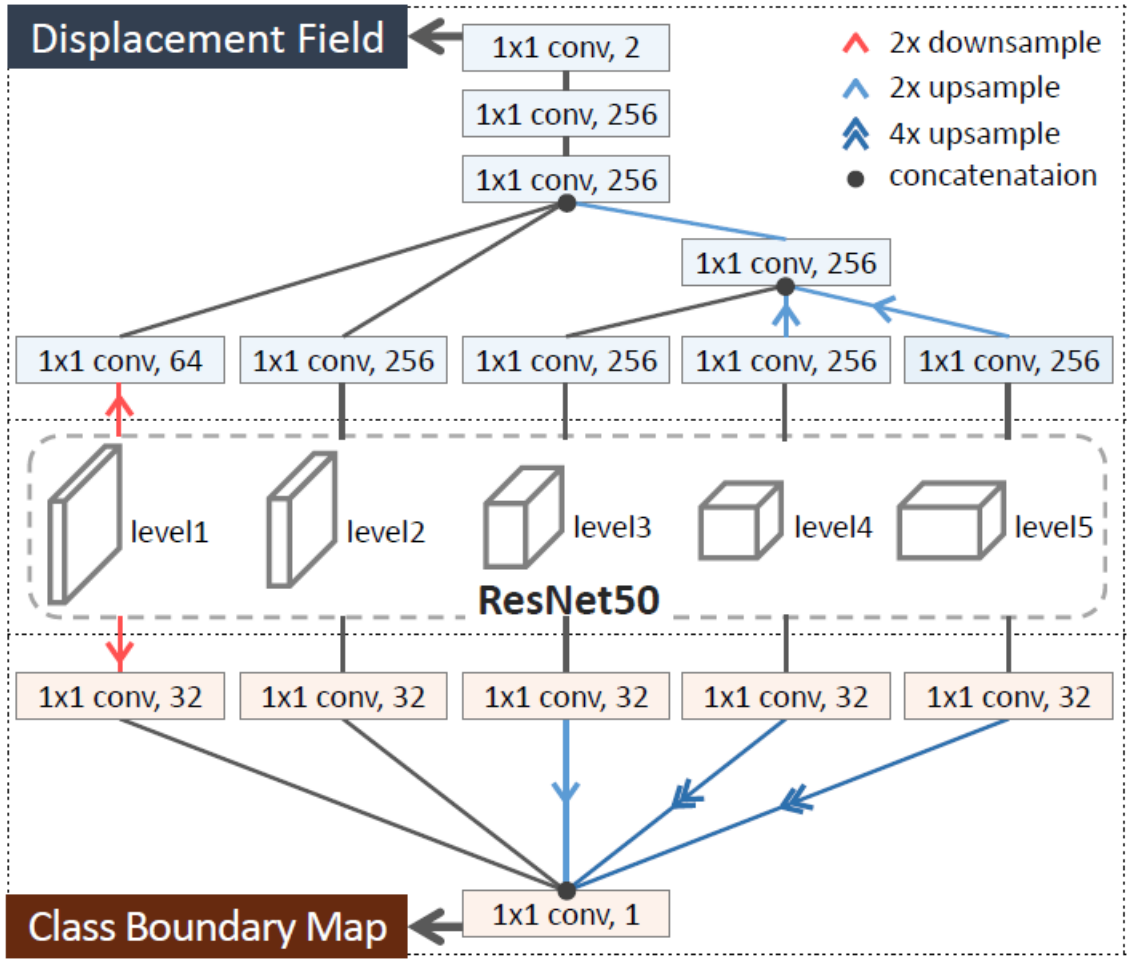
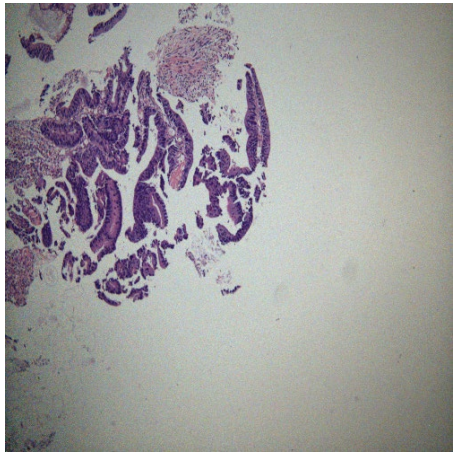
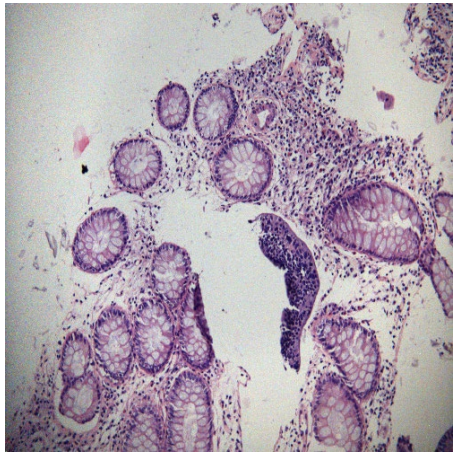


Figure 2. Overall architecture of IRNet.

2. **IRN** (Weakly Supervised Segmentation with Inter-pixel Relations)

image | Pseudo label | target



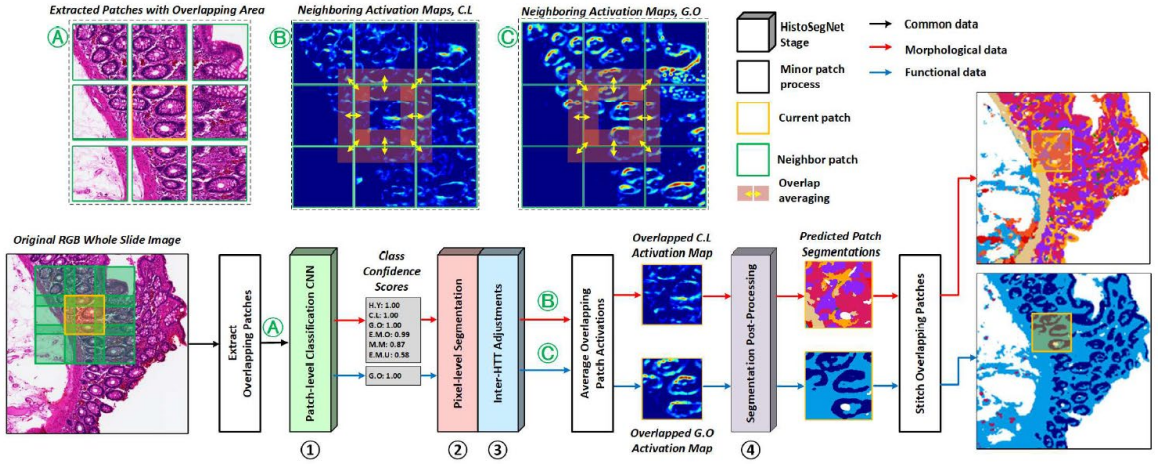
- Pseudo labels were not generated properly

  -> the model was not learned at all

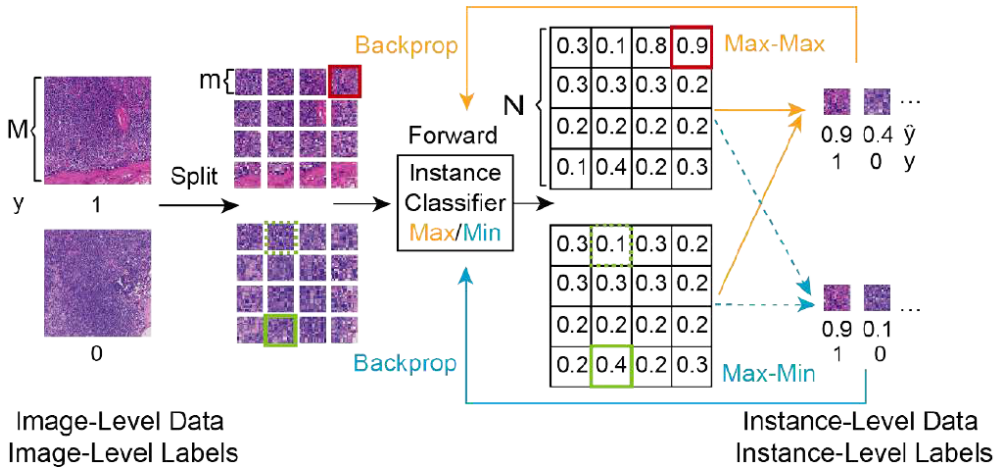
- It seems the problem is trying to see the **whole image at once.**

3. Weakly Supervised Segmentation for Histopathology Images

HistoSegNet



CAMEL



- **Patch-based**
- Multiple Instance Learning
  +
  Self Supervised Learning