

# Deep ensembles based on Stochastic Activation Selection for Polyp Segmentation

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# Stochastic Activation

## Input:

Net architecture: C (DeepLabV3+ here)  
Set of activation functions: A  
Number of Classifiers: N

## Output:

Ensemble: E

## Algorithm:

**Initialize** E as the empty set

**For** i=1:N

  C' := C

**For** ac = activation layers in C'

    replace ac with a random activation in A

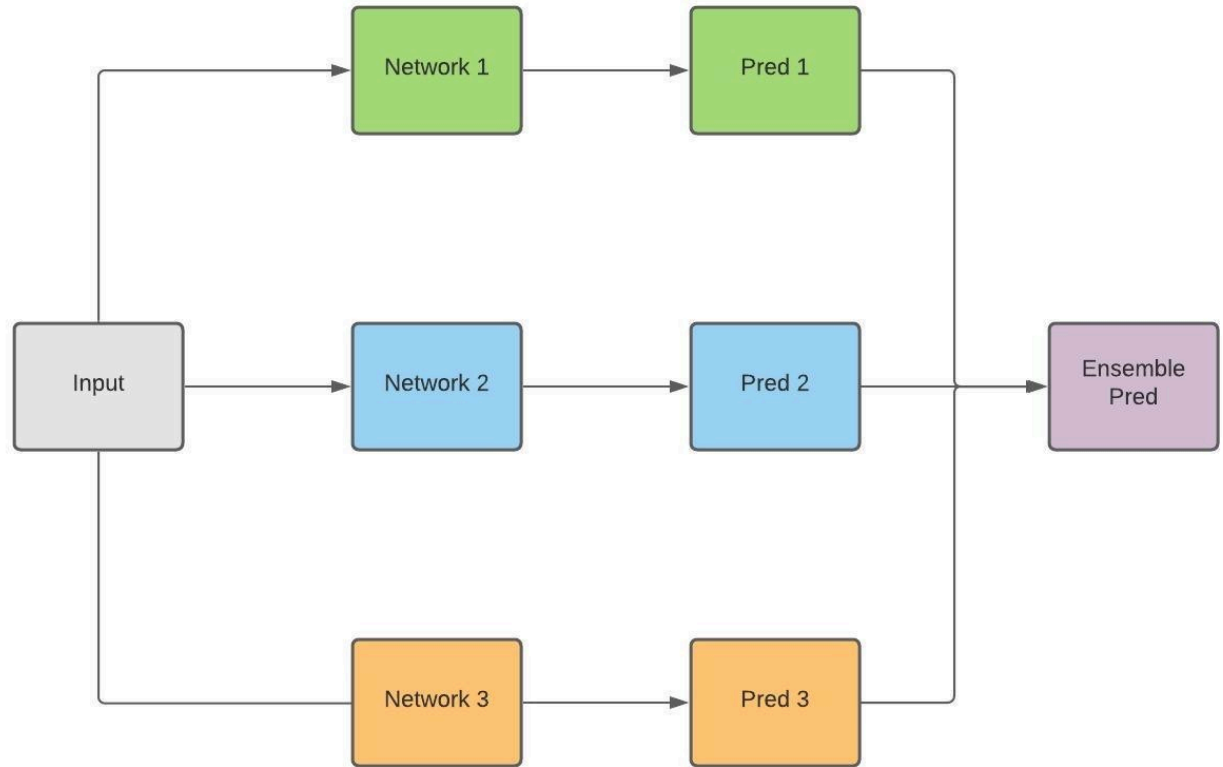
**EndFor**

  Train C' on training set

  Add C' to E

**EndFor**

**Return** E



# Applications



On the left there are sample of the dataset we used for testing. We applied our algorithm to polyp image segmentation in colonoscopy using the Kvasir-Seg dataset.

Our ensemble manages to outperform an ensemble of DeeplabV3+ baselines with ResNet50 and ResNet101 as backbone networks.

We outperform every method in the literature except HarDNet-MSEG (Jha et al.). They use large data augmentation.