
Supplementary Material

Anonymous Author(s)

Affiliation

Address

email

1 Method Code-flow

We present code-flow work for each of the three training stages in the following sections.

1.1 Stage 1: Training a classification network using BAP

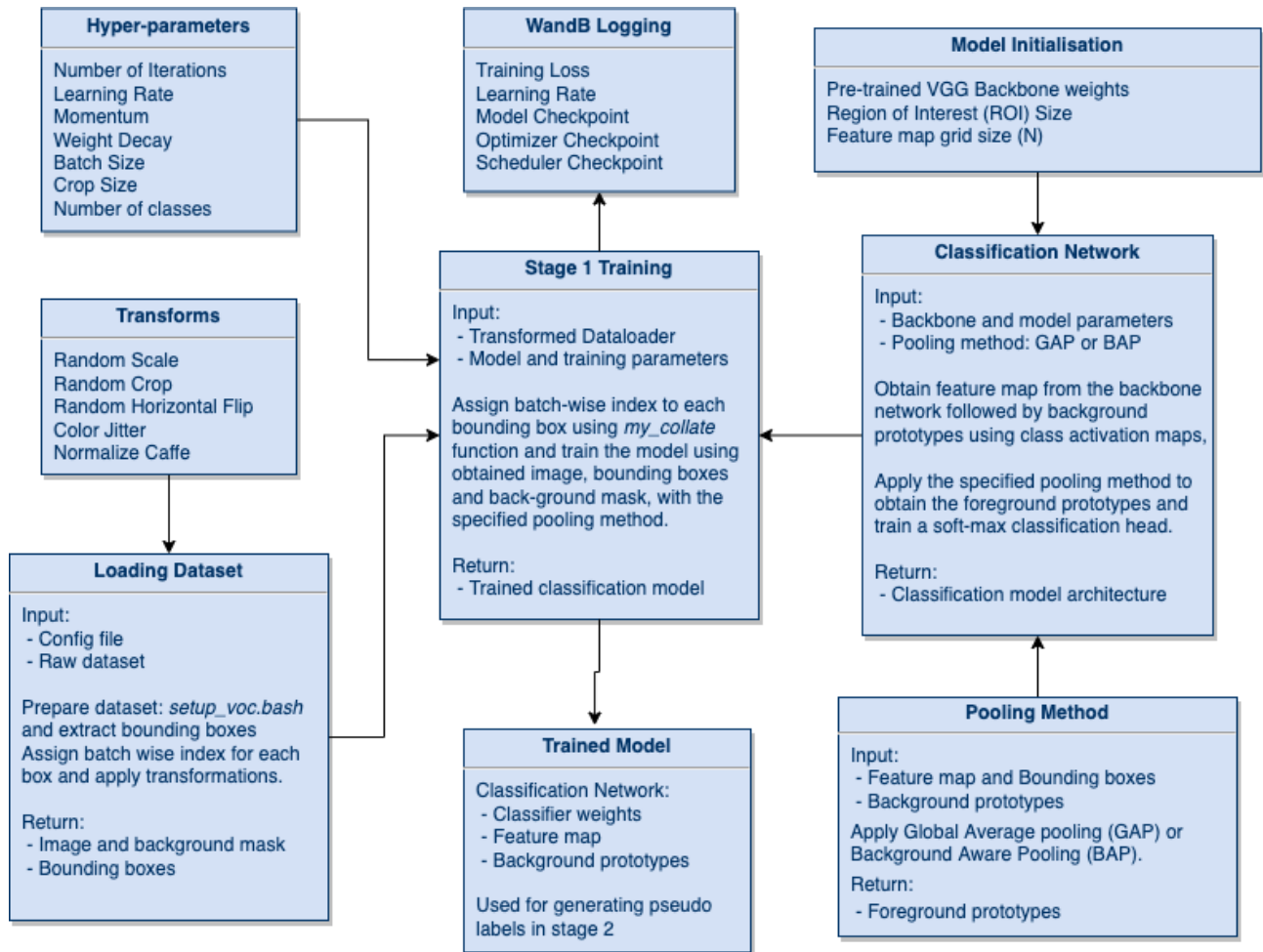


Figure 1: Stage 1 Code flow

4 1.2 Stage 2: Obtaining pseudo labels from the trained classification model

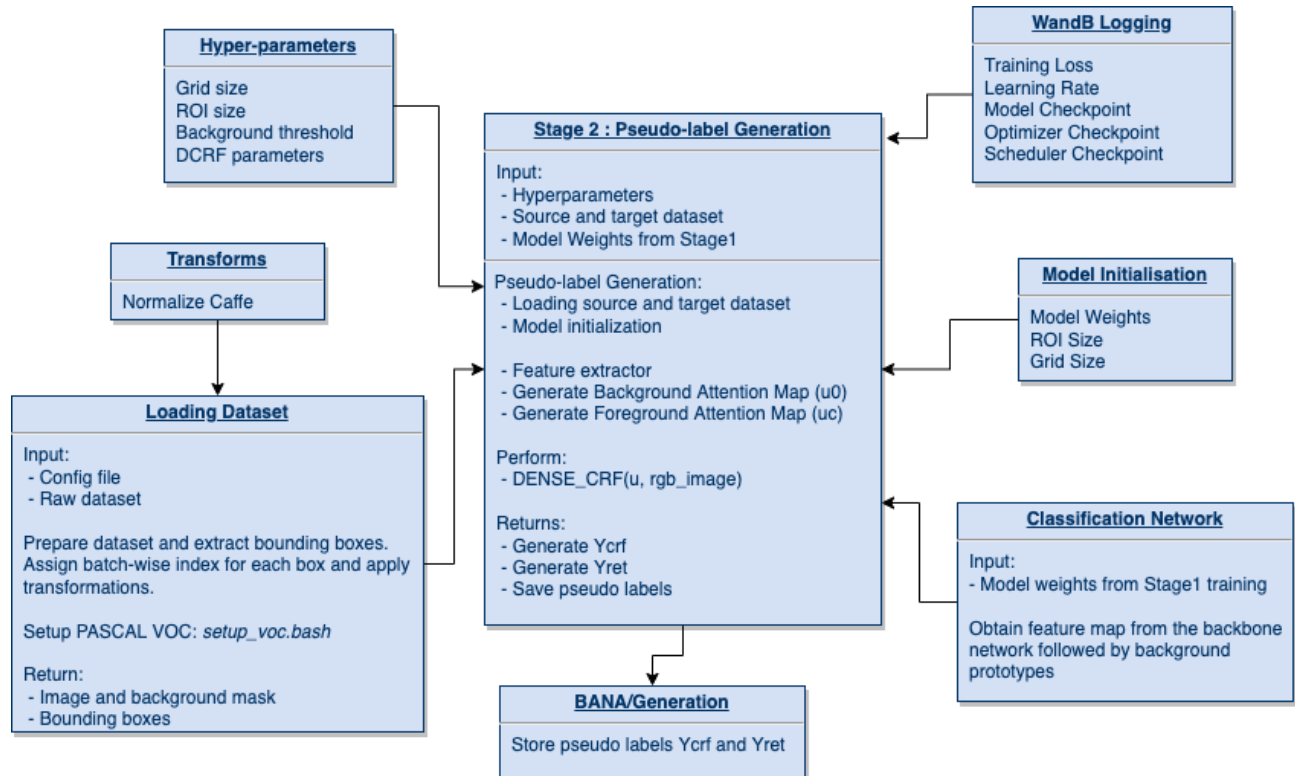


Figure 2: Stage 2 Code flow

5 1.3 Stage 3: Training segmentation network using the pseudo labels obtained and NAL loss

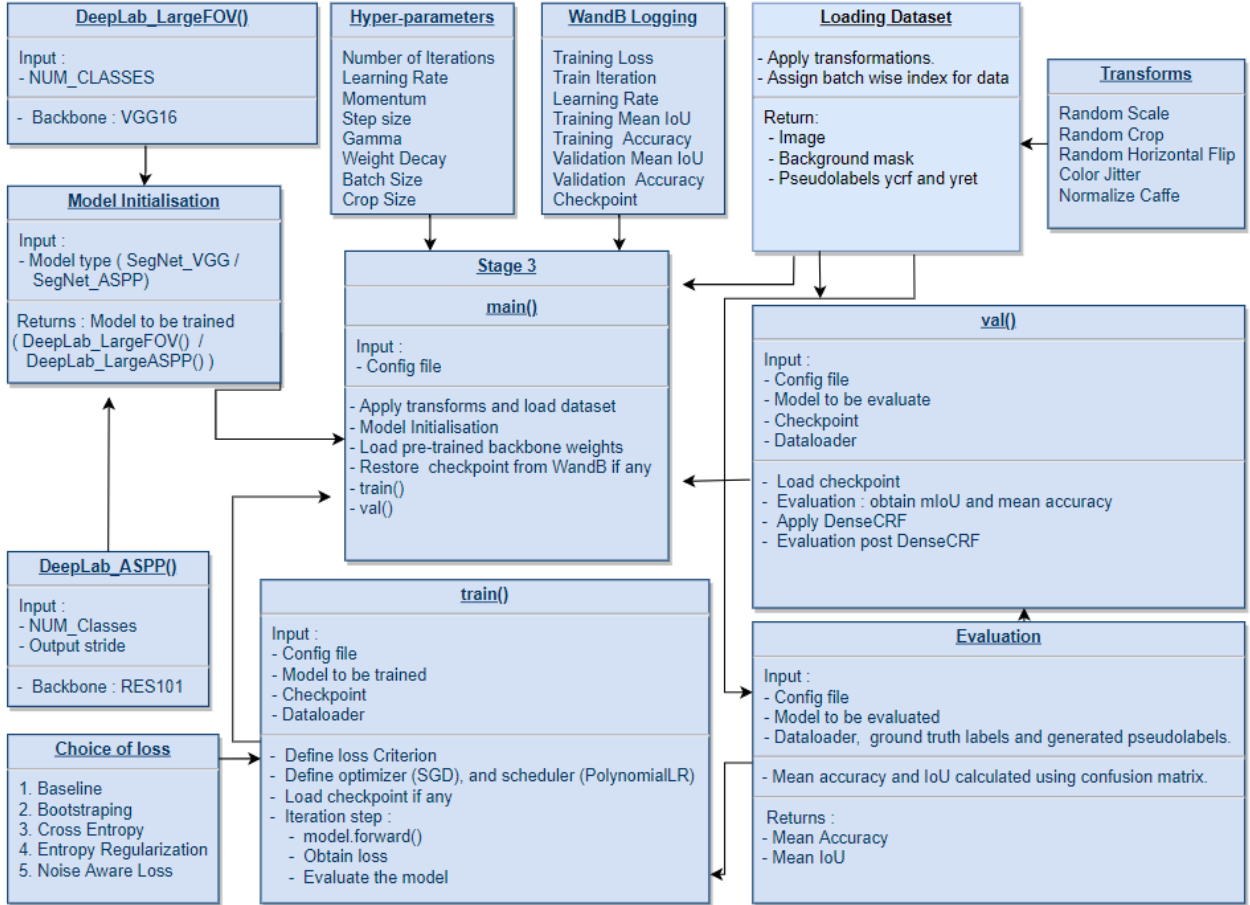


Figure 3: Stage 3 Code flow

2 Class Agnostic Pseudo Label Generation using u_0

In our VOC to COCO experiment, mapping was done between the classes of VOC to the corresponding COCO classes to facilitate usage of CAMs. Here we further investigate the usage $1 - u_0$ as a class agnostic foreground attention map for all classes instead of using CAMs. We perform this experiment on the VOC train set, wherein no CAMs have been used in label generation. The results in comparison with usage of CAMs for u_c strongly exhibit the generic nature of pseudo label generator using the background attention map. Visual comparison of the images is shown in Fig. (4).

Method	CAMS for u_c	$1 - u_0$ in place of u_c
BAP Ycrf	78.7	67.48
BAP Yret	70.8	68.66

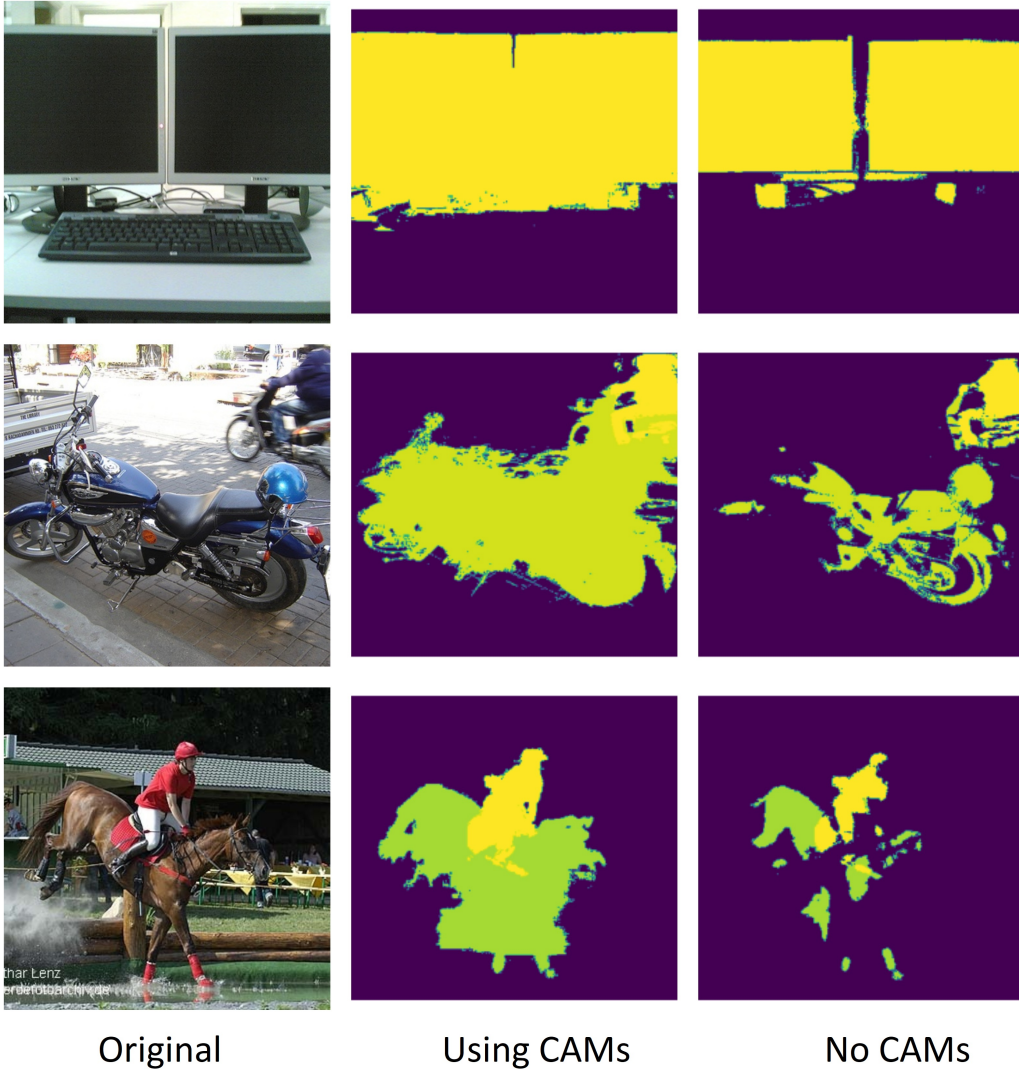
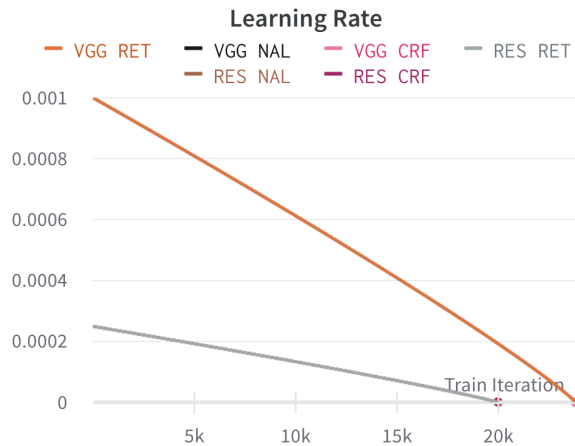
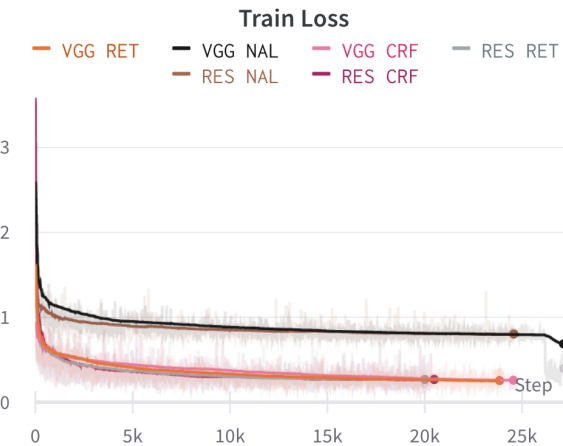
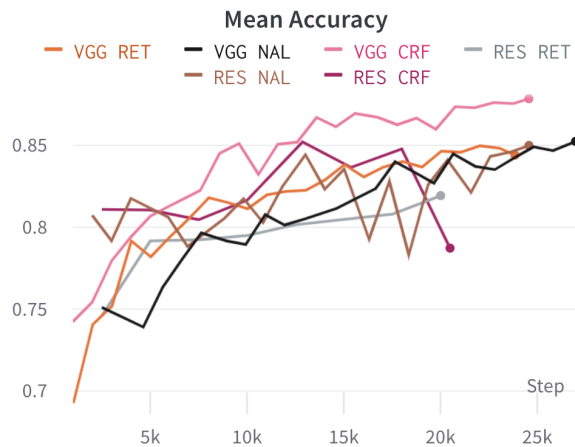
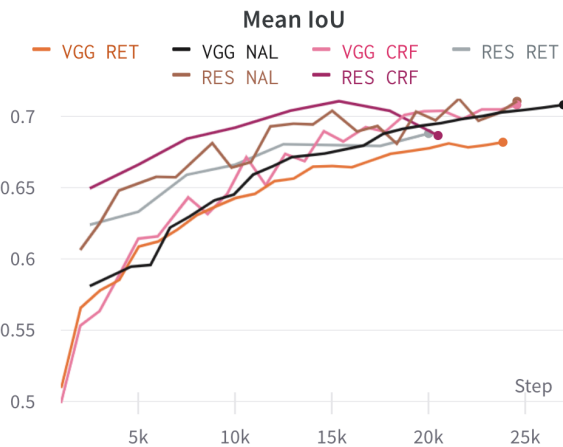


Figure 4: Visual Comparison : class-agnostic label generation

3 Wandb Training Logs

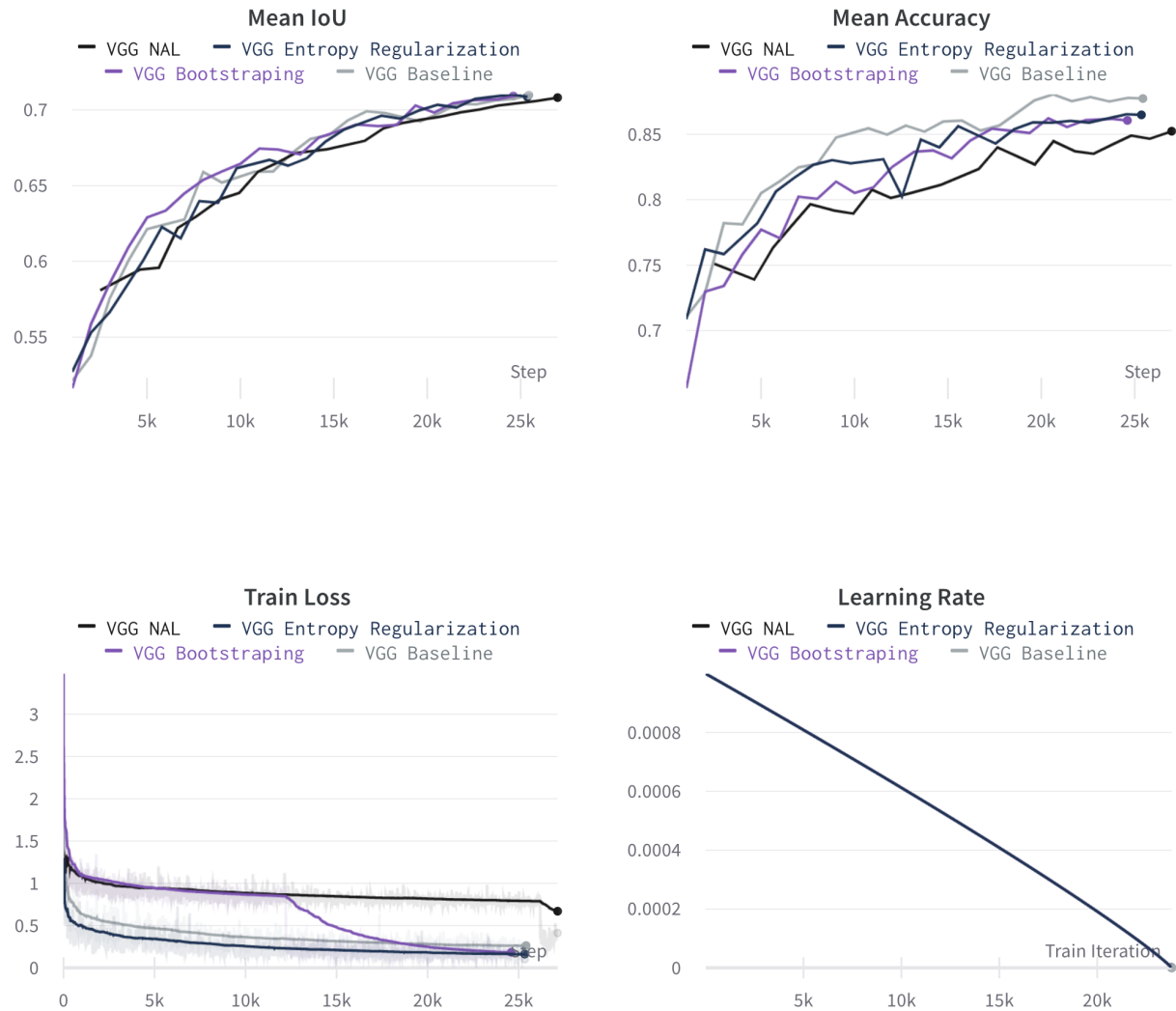
3.1 Experiments with NAL loss

Following are the training logs obtained during the Stage 3 training with cross-entropy loss on Y_{crf} and Y_{ret} individually, and with NAL using both.



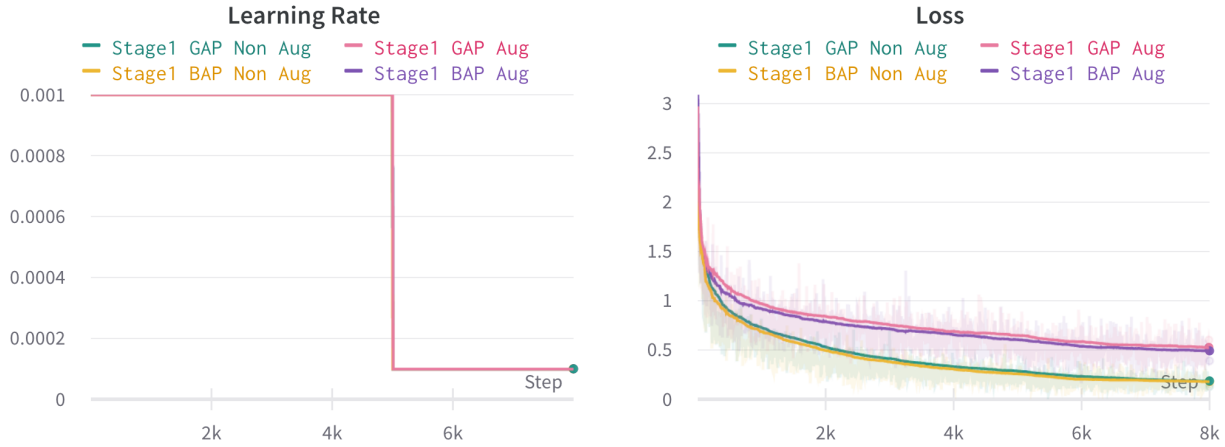
3.2 Experiments with NAL and it's counterpart loss

Shown below are the training logs of Stage 3 experiments using NAL and other contemporary losses. Mean IoU score and mean accuracy shown are obtained on training set.



3.3 Experiments with GAP and BAP

Here we present training logs from Stage 1 experiments using BAP and GAP on augmented dataset and non-augmented dataset.



4 Detailed study: BAP vs GAP

The complete results in our comparison of BAP and GAP are shown below. In both the methods, we notice a significant improvement in mean IoU upon using the augmented dataset. As seen from the results, BAP is superior than GAP for the different experimental configurations.

Method	Author's Results		Our Results			
	Augmented		Augmented		Non-augmented	
	train	val	train	val	train	val
GAP Ycrf w/o u0	-	-	70.2	67.5	73.1	62.0
GAP Ycrf	75.5	76.1	76.6	75.5	77.2	75.7
GAP Yret	-	-	73.6	72.7	72.5	70.5
BAP Ycrf w/o u0	77.0	77.8	78.3	77.0	73.9	62.0
BAP Ycrf	78.7	79.2	80.1	78.8	79.5	75.4
BAP Yret	70.8	69.9	71.4	69.9	70.3	65.0
BAP Ycrf & Yret	85.3	68.2	85.7	72.7	82.4	79.6

Table 1: Comparison of pseudo labels on the PASCAL VOC validation sets in terms of mIoU