

## A Implementation Details of Adaptive CutMix

Adaptive CutMix requires a randomly selected unlabeled image that contains the sampled category, thus we need a criteria to determine whether an unlabeled image  $I$  contains the category  $c$  ( $c \in \{1, \dots, C\}$ ). Concretely, in our implementation, we maintain a dictionary which is dynamically updated during training to record the category-wise information for each unlabeled image. For each unlabeled image from a training batch, we use the teacher model to generate pseudo labels as the approximate ground-truth. Then we compute the ratio  $r^c$  between pseudo labels of the category  $c$  and the total pixels of the image  $I$ . With a predefined threshold  $r^*$ , we can easily identify the category  $c$  is existing in the image  $I$  if  $r^c > r^*$ . Notice an unlabeled image may be identified as containing multi categories. Table 6 in Section 4.3 ablates the threshold  $r^*$ .

## B Hyper-parameters for PASCAL VOC 2012 Dataset

In this section, we present hyper-parameter settings of our proposed AEL on PASCAL VOC 2012 dataset [33]. All hyper-parameters are chosen carefully with extensive experiments. Concretely, tunable parameter  $\gamma$  is set as 2 and confidence is used as the indicator to assess the category-wise performance during training. The ratio  $r^*$  in adaptive CutMix is set as 0.03 and the number of sampled categories  $K$  is set as 1 since the image in PASCAL VOC 2012 dataset contains fewer categories and larger instances than Cityscapes dataset [1]. The loss weight  $\alpha$  is also set as 1 as in Cityscapes dataset.

## C Qualitative Results on PASCAL VOC 2012 Dataset

Figure 4 shows the visualization results on the PASCAL VOC 2012 [33] val set. We compare the proposed AEL with ground-truth, supervised baseline and our basic framework described in Section 3.2. AEL achieves promising visual quality and further improves fine details.

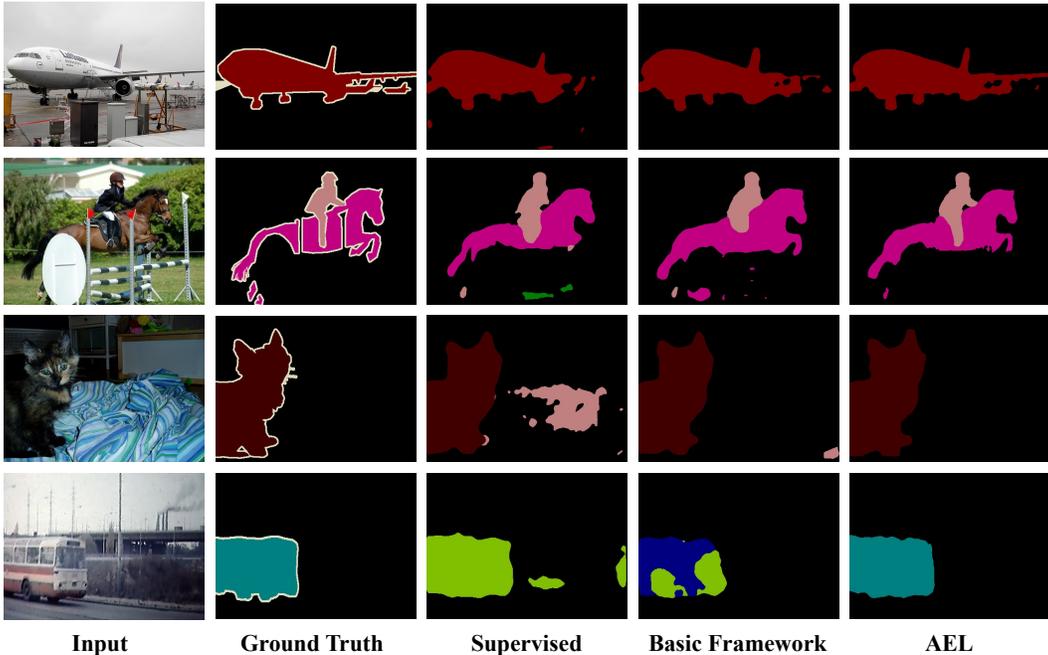


Figure 4: Visualization results on the PASCAL VOC 2012 val set. From left to right: input image, ground-truth, predictions of the supervised baseline, predictions of our basic framework and predictions of the proposed AEL.

## Checklist

1. For all authors...
  - (a) Do the main claims made in the abstract and introduction accurately reflect the paper's contributions and scope? [\[Yes\]](#)
  - (b) Did you describe the limitations of your work? [\[Yes\]](#) See Appendix.
  - (c) Did you discuss any potential negative societal impacts of your work? [\[Yes\]](#) See Appendix.
  - (d) Have you read the ethics review guidelines and ensured that your paper conforms to them? [\[Yes\]](#)
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