Learning Generalized Intersection Over Union for Dense Pixelwise Prediction
Supplementary Material

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A. Pseudo code of PixIoU

Explicitly, we provide the pseudo code for computing PixIoU and Lovász PixIoU as following.

Algorithm 1 Pseudo code on the computation of PixIoU

\begin{algorithmic}
\State \textbf{input} \( \hat{y} \) the groundtruth, \( y \) the prediction, \( C \) the set of labels.
\State \For{c \in C} 
\State \textit{m} = |\( \hat{y} == c \)|; 
\State \textit{n} = (\( \hat{y} == c \)) \& (\( y != c \)); 
\State \textit{p} = (\( \hat{y} != c \)) \& (\( y == c \)); 
\State \textit{iou}_c = \frac{m - \text{sum}(n)}{m + \text{sum}(p)} 
\State \textit{dn} = \text{distanceFunction}(y, c) 
\State \textit{dp} = \text{distanceFunction}(\hat{y}, c) 
\State \textit{pixiou}_c = \frac{m - (dn, n)}{m + (dp, p)} + \text{iou}_c - 1 
\EndFor 
\State \textbf{return} \( \text{pixiou} = \frac{1}{|C|} \sum_{c \in C} \text{pixiou}_c \)
\end{algorithmic}

B. Qualitative results

In this section, we show more qualitative results of the experiments in Figure 1, Figure 2 and Figure 3
Figure 1: Qualitative results on Pascal VOC 2012 of the model Deeplabv3-resnet101.
Figure 2: Qualitative results on Cityscapes of the Deeplabv3+ models trained with different loss functions.
Figure 3: Examples of the cases that PixIoU provides larger gradients than those of IoU, and the predictions with larger PixIoU provides better qualitative results.