Weekly Report

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Abstract—**This week I mainly put my effort on training PSPNet and RefineNet model on our dataset.**

I. MODEL TRAINING

WE tried most of the state-of-the-art models, including DeepLab V3, DenseNet, PSPNet, RefineNet and GCN model.

- We tried DeepLab V3 and DenseNet last week. However, neither performed well on our dataset. We have no choice but to try more.
- After a long period of training, the result showed these models didn't perform well as I expected. Although they get competitive results on PASCAL VOC dataset, such as **80**% **mIoU**, they only achieve **50-60**% **mIoU** on our dataset in turn.

II. RESULT ANALYSIS

We discussed about our result, then raised following reasons for poor accuracy.

- Obviously, the mere difference is dataset. We checked up them and compared carefully. One major drawback is the fuzzy label of our dataset. For optical remote sensing images, some places are shaded by trees or high buildings. Yet for label images, these regions are labeled as primary class. Therefore, they would pollute the whole dataset and make the model confused.
- As for our result, the lowest accuracy is of road class. Since the color of road is very close to some roofs, and they are both flat, it's hard for the model to distinguish road from these buildings.
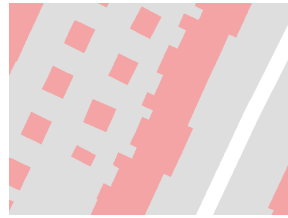- The test result of these models in sequences are Fig. 3, Fig. 4.

Fig. 1: Ground truth image DeepLab V3

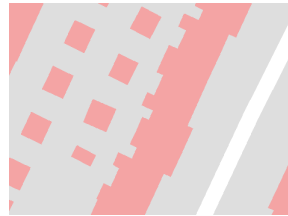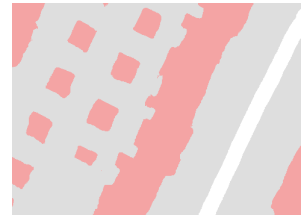Fig. 2: Prediction image DeepLab V3

Fig. 3: Ground truth image FCDenseNet

Fig. 4: Prediction image FCDenseNet