Weekly Report

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Abstract—**This week I mainly put my effort on training DeepLab V3 and FC-Densenet model on our dataset.**

I. DEEPLAB V3

DEEPLAB V3 is a state-of-the-art semantic segmentation model, released by Google. Since DeepLab V2 hasn't achieved a good performance on our dataset, so I turn to V3.

- Recently, Google has released official DeepLab series code on GitHub. But it only supports 2 public datasets, PASCAL VOC and CityScapes till now, and doesn't support customer's dataset.
- After searching a lot on GitHub, I found one open source project called **Semantic Segmentation Suit**e. It implements most fashion models, including **DeepLab V1-V3+**, **PSPNet**, **RefineNet**, **FC-DenseNet**, etc.
- After training DeepLab V3 model for 100 epochs, I get the result on training set as follows. The ground truth image is Fig. 1, the prediction image is Fig. 2.
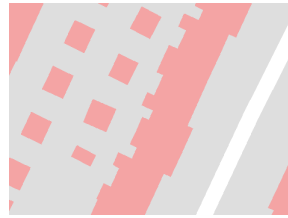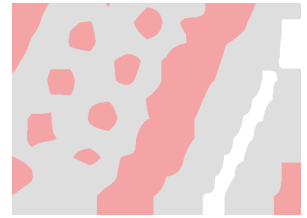
II. FC-DENSENET

DenseNet wins the CVPR 2017 best paper. It improves ResNet significantly. FC-DenseNet combines fully connected net with DenseNet, and get state-of-the-art result. I tried this as well.

- The training time of FC-DenseNet is about 2 times as DeepLab V3 based on ResNet, maybe because the former structure is more complicated than the latter.
- After training FC-DenseNet for 100 epochs, I get the following result. The ground truth image is Fig. 3, the prediction image is Fig. 4. Better than DeepLab V3.
- Since the author has updated some model files, I'm training them with extended data again to see whether it would be better.

Fig. 1: Ground truth image DeepLab V3
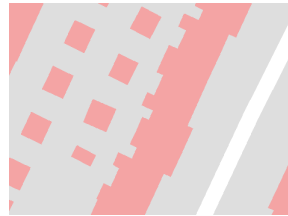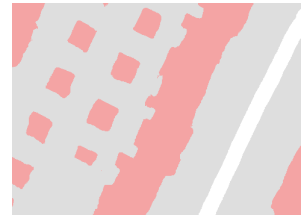

Fig. 2: Prediction image DeepLab V3

Fig. 3: Ground truth image FCDenseNet

Fig. 4: Prediction image FCDenseNet