# Weekly Report

Adviser: Prof. Yang Wen
Student: Cheng Wensheng
Period: 2018.7.29-8.5

***Abstract*—This week I mainly put my effort on improving the segmentation accuracy of building extraction.**

## I. CNN METHODS

SINCE the result of our first submission is about 57%, which is not ideal. So we need to try more ways to improve the accuracy. Firstly, I tried other deep learning methods.

- The algorithm of our first model is RefineNet, which has the best performance in CETC54 project.
- PSPNet was proposed by Jiaya Jia, which has a high accuracy regardless of running time. So I tried this, but it didn't behave better than RefineNet, neither did DeepLab V3 nor DeepLab V3 plus.
- The main problem is that we have few training data. We only get 90 images with the size of 512×512, which is seriously adequate for CNN methods. So these CNN models can't learn enough features and can't perform well on testing dataset.
  Fig. 1 is the ground truth. Fig. 2 is the PSPNet result.

## II. TRADITIONAL METHODS

It has been a long time for scholars to interpret SAR images with traditional methods. So we tried some traditional methods to have a look.

- General methods are extracting the L-like structures with strong intensity. They assume that all buildings show this response to SAR.
- However, for the contest images, not all the buildings look like L shape. So this will inevitably miss some buildings.
- Besides, these traditional papers show little concern of noise. Those SAR images in papers are so clean and only have buildings. Yet we have to deal with these noise, like roads and trees. We still need to do more on the basis.

Fig. 1: Ground truth

Fig. 2: PSPNet result