**Review**

I’ve read all the reports of my teammates and I’d like to make a review of them.

The first one is about unsupervised learning from Yaqun. I learnt that unsupervised learning is a type of self-organized Hebbian learning that helps find previously unknown patterns in data set without pre-existing labels. Different from supervised learning, in unsupervised learning, no one is required to understand and label the data inputs. In addition, the unlabeled data is easier to get from a computer. Though unsupervised learning seems very convenient, it also has some weaknesses. First, you cannot get very specific definition of the data and its accuracy is not as high as supervised learning. Furthermore, the results of the analysis cannot be ascertained. The best time to use unsupervised machine learning is when you do not have data on desired outcomes.

The second report is about machine learning from Yufeng. From the report I have learnt some knowledge about Tensorflow. In the report a piece of code is shown to implement the basic image classification that 60,000 images were divided into 9 classes.

The third report is about unsupervised learning from Luxuan. The definition and introduction of unsupervised learning can also be seen in this report, which is similar to Yaqun’s report. I also know from the report that unsupervised learning has a variety of methods such as K-means, self-encoders, and principal component analysis.

Then I read the report about object detection from Wei. In this report I learnt the general principle of object detection. The goal is to segment an image and output a segmental map with a class label. Then the class labels would be encoded to create an output channel for each of the possible classes. A prediction can be collapsed into a segmentation map by taking the argmax of each depth-wise pixel vector. In this way, we can easily inspect a target by overlaying it onto the observation. Up sampling method is an important part of object segmentation. It’s meaningful to learn from the report that how to upsample the resolution of a feature map. Then the basic architecture of a neural network is also introduced. It also mentions that convolutional networks by themselves, trained end-to-end, pixels-to-pixels, improve on the previous best result in semantic segmentation.