Report of Deep Learning

1 The Using of Caffe, Torch and Tensorflow

During the study this month, I have learned these three tools of deep learning. And I followed the tutorial studying the languages such as python, numpy and lua. Also, I trained a small network using torch. (Because I don't have a powerful machine, training these networks is so difficulte)

2 Faster RCNN: Object detection

I have read the paper *Faster R-CNN: Towards Real-Time Object Detection with Region Proposal Networks* and the related papers which mentioned original topics such as rcnn and fast rcnn. Reading these papers took me a lot of time. I run the demo on my computer but I cannot train the network because my computer cannot support it.

3 Stacked Hourglass Networks for Human Pose Estimation

I have read the paper and some implementation code of this project. To train the networks on Pascal-Part dataset, the most difficult problem is to read the annotations. In the original source code, the annotations of the dataset MPII is stored in the form of hdf5. However, the annotations of Pascal-Part is stored in the files *.mat which is used in matlab. The only way comes up in my mind is to read the files *.mat in matlab and write the useful data in the form of hdf5. Another problem occurs that I cannot tell which data should be used in training the network. This has become the most difficult part of the project up to now.

4 Conclusion

After a month's learning, now I have a basic knowledge of deep learning, mastering the knowledge of neural networks and convolutional neural networks. The biggest problem is to fully understand the relationship between the process of dealing with pictures and the structure of ConvNets. I suppose the main reason is the lack of application about those abstract knowledges of neural networks which can be solved by reading more papers and implementing more projects.