ML HW11 Report

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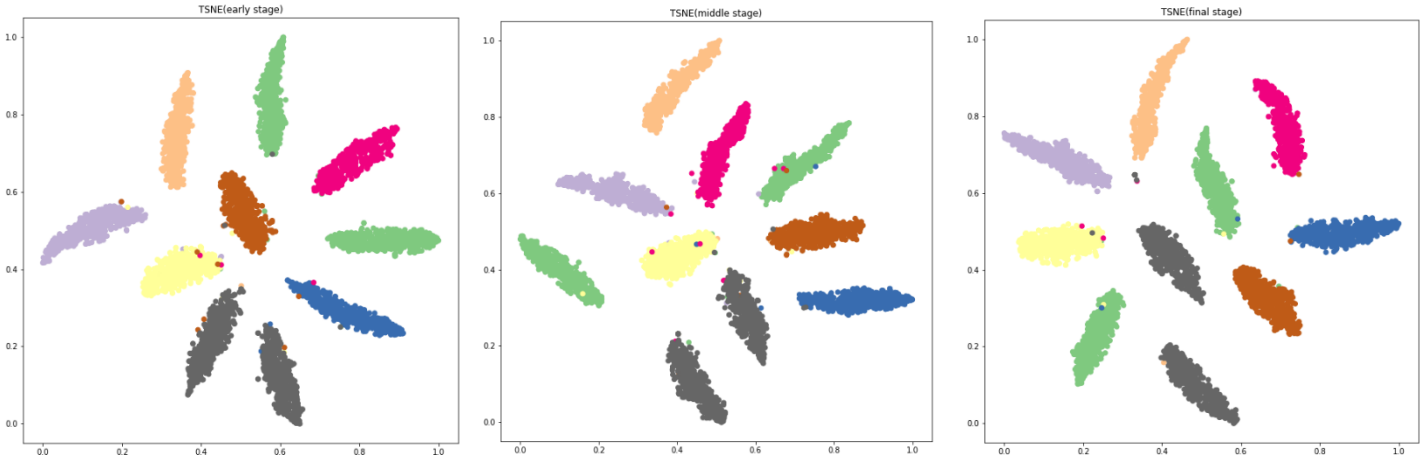
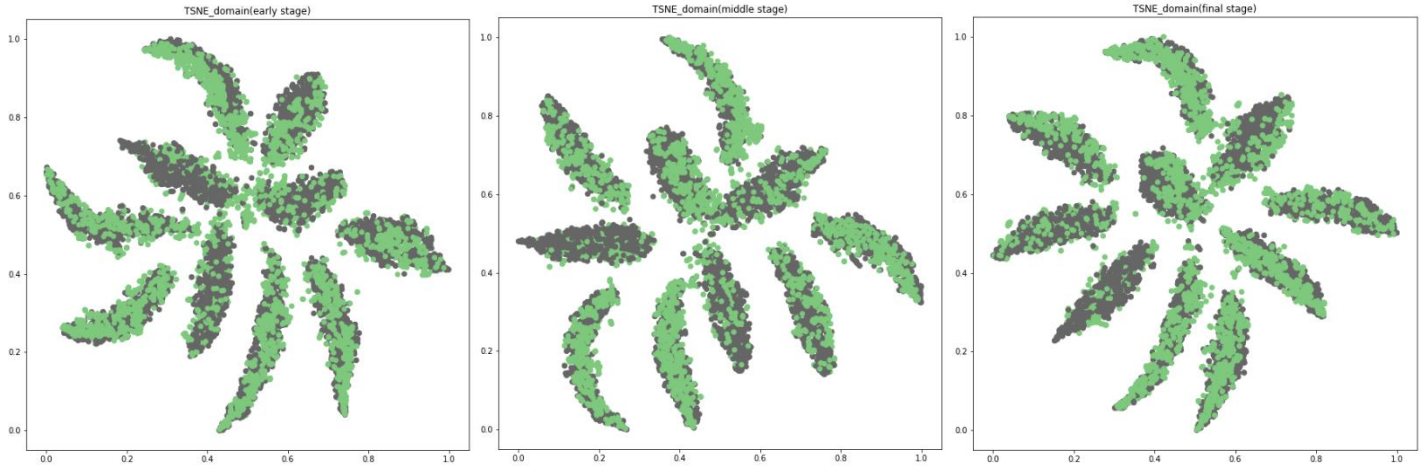
1. Visualize distribution of features across different classes.



To be detailed, I trained the model for total 1800 epochs. Therefore, early stage, middle stage and final stage refer to the model at 600 epoch, 1200 epoch and 1800 epoch respectively. As we can see from the figures, I believe the feature extractor is a fairly good model for classification since we are able to see the separation of classes in t-SNE from early stage. Although minor, we can also see that during the middle and final stages, the performances of the model had slightly increased in terms of separating different classes. These results are quite reasonable since I followed the architecture of vgg model when creating feature extractor, and it is well-known that vgg performs well in terms of classification tasks.

2. Visualize distribution of features across different domains.



The settings of early, middle and final stages are the same as Q1. As we can see from the figures, source data and target data are well-merged from the early stage and keep on improving until the final stage which has the best performance. I believe this is a good feature extractor for domain adaptation (DA) tasks since we aims to make distribution of different datasets look similar, and it is obvious from the figures that the features of two datasets look alike.