Independent Study

Yun-shao Sung*

Abstract. This is independent study mid-way report

1. Abstract. Hi1!

2. Introduction. Hi2!

3. Baseline Approach. Here is the baseline approach which can be roughtly divided into two parts: the first part is constructing symmetric matrix from the feature similarity along time, and the second part is to construct symmetric normalized Laplacian matrix and obtain the top m eigenvectors with the top m smallest eigenvalues, and then perform k-means for boundary detection.

Algorithm 1 Baseline Approach

Input: number of top m smallest eigenvalues

```
M = getSymmetricMatrix()
L = scipy.sparse.csgraph.laplacian()
eigVals, eigVecs = np.linalg.eig(L)
Y = getMthSmallest(eigVals, eigVecs, m)
```

Algorithm 2 boundaryDetection

Input: Laplacian eigenvectors $Y \in R^{n \times m}$
Output: Boundary b, Centroids c

```
M = getSymmetricMatrix()
L = scipy.sparse.csgraph.laplacian()
eigVals, eigVecs = np.linalg.eig(L)
Y = getMthSmallest(eigVals, eigVecs, m)
```

3.1. Hi2sub. Hi2sub!

*yss265@nyu.edu

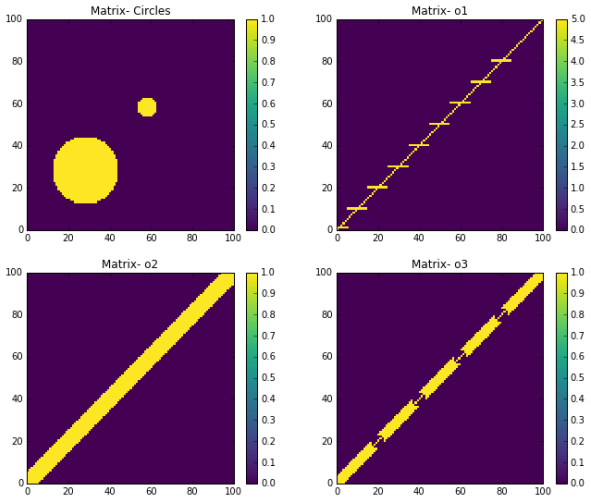

Figure 3.1. *The training and test accuracy with epochs*

3.2. ToDos. Hi3!

REFERENCES

[1] A Tutorial on Spectral Clustering
[2] Analyzing Song Structure with Spectral Clustering
[3] Deep clustering: Discriminative embeddings for segmentation and separation
[4] Learning Deep Representations for Graph Clustering
[5] Hierarchical Evaluation of Segment Boundary Detection