Abstract

Adaptive Resonance Theory-2 (ART-2) is a clustering method which is able to overcome stability plasticity dilemma which measures relative proximity between instances based on angles. That type of proximity is more suitable for sparse data. If ART-2 is used for dense data, every data vector will be normalized so that the information about the length of the vectors disappear. Proximity measure which is suitable for dense data is proximity measure which satisfies triangle inequality like Euclidean distance. This undergraduate thesis proposes a data transformation method which represents Euclidean distance as cosine similarity measure in order to improve the quality of clustering result from ART-2. Clustering using ART-2 on transformed data shows better quality than on untransformed data. The average improvement is 0.087 for rand statistic, 0.018 for jaccard coefficient, 0.205 for silhouette coefficient, and 0.517 for davies bouldin index.

Keywords: ART-2, *clustering*, *euclidean*, *learning,proximity*