

A review of metric learning methods

Anonymous CVPR submission

Paper ID 0000

Abstract

Metric learning is the task of learning a distance function on pair of objects. We review three metric learning methods based on deep learning, including Siamese Network, Triplet Network and n-Tuple Network framework. These frameworks output low dimensional embedding for input data, on which we may use Euclidean distance as the distance function. These frameworks all include a set of neural networks sharing the same structure and parameters and a loss function combining the outputs of the networks. In this work, we wrote a wrapper class for the network to hide the low-level implementation, and focus on the design of the high-level frameworks and loss functions. In our experiment on MNIST dataset and a classic network structure, Siamese Network has a mediocre performance while Triplet Network produces better embeddings. We are not able to make the original n-Tuple Network work. However, we have tested a few modified versions of it, which keep the framework unchanged but use different loss functions.

1. Introduction