Domain Adaptation using Shallow and Deep Representations

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Domain adaptation techniques refer to a class of methods that attempt to bridge the differences between the distributions of training and test data. This classical problem in pattern recognition and machine learning has generated renewed interest due to the multitudes of ways in which data is collected. First, we briefly review recent methods developed for unsupervised domain adaptation using Grassmannian and sparse representations. We then present two approaches based on generative adversarial networks. We discuss the impact of these methods for object and face recognition as well as semantic segmentation problems.