

Abstract

Facial recognition is used on a daily basis in a wide variety of settings. It has countless security applications, and is used in both law enforcement and on personal devices. Unfortunately, occlusions such as facial accessories and a variety of other possible obstacles between the subject and the camera can make facial recognition very challenging. Additionally, variations in lighting along with an assortment of other environmental conditions also present a challenge to the recognition task. The ability to use facial recognition more passively than any other biometric classifier, without the subject even being aware of its use, makes the topic both interesting and valuable, but also makes it incredibly difficult. Sparse representations using learned dictionaries have been shown to represent signals well in a sparse space and recover the underlying structure of the signal. The ability of these sparse codes to recover and represent information well makes it useful for classification problems such as facial recognition. This paper will discuss some of the methods of learning dictionaries, the corresponding sparse codes, and how they can be employed for facial recognition.