

A comparison of the YCBCR color space with gray scale for face recognition for surveillance applications

Abstract

Face recognition is an important biometric method because of its potential applications in many fields, such as access control and surveillance. In this paper, the performance of the individual channels from the YCBCR color space on face recognition for surveillance applications is investigated and compared with the performance of the gray scale. In addition, the performance of fusing two or more color channels is also compared with that of the gray scale. Three cases with different number of training images per persons were used as a test bed. It was found out that, the gray scale always outperforms the individual channel. However, the fusion of CBxCR with any other channel outperforms the gray scale when three images of the same class from the same database are used for training. The CBxCR channel gave the best performance for the individual color channels followed by CB, CB-CR, CB/CR and CR respectively. It was also found that, in general, increasing the number of fused channels increases the performance of the system.