

# **The Effect of Training Data Selection on Face Recognition in Surveillance Application**

## **ABSTRACT**

Face recognition is an important biometric method because of its potential applications in many fields, such as access control and surveillance. In surveillance applications, the distance between the subject and the camera is changing. Thus, in this paper, the effect of the distance between the subject and the camera, distance class, the effect of the number of images per class, and also the effect of database used for training have been investigated. The images in the database were equally divided into three classes: CLOSE, MEDIUM, and FAR, according to the distance of the subject from the camera. It was found that using images from the FAR class for training gives better performance than using either the MEDIUM or the CLOSE class. In addition, it was also found that using one image from each class for training gives the same recognition performance as using three images from the FAR class for training. It was also found that as the number of images per class increases, the recognition performance also increases. Lastly, it was found that by using one image per class from all the available database sessions gives the best recognition performance.