Abstract

The problems of newborn’s abduction, mixing, swapping, etc. are increasing day-by-day. This problem has now reached a global aspect, as the consequences have now become critical. The researches performed to meet the challenge are very few. The growing problem motivated a need of sustainable system that can assist the hospital authorities and even the parents to keep a track of any newborn baby and his parents. The concept of biometric recognition has always proven to be a powerful tool when the identification of an individual comes into play. Therefore the face recognition among newborn is implemented in the proposed system. In order to deploy face recognition system for newborns, first a database is generated maintaining the images of a newborn and all the suspected parents. Matlab is used as a programming tool for the proposed work. The system trains the sample images of the parents using the HMM with a combination of SVD coefficients. The HMM and SVD models provided an approach to model a system that can develop a training sample of the image and can detect the image while any test sample is presented to the program. As a pre-processing method two-dimensional order static filtering is applied to the test images that improve the computational speed and accuracy of the system. Quantization SVD differentiates each image
into a sequence of block and then each block of image is regarded as a numeric string. The HMM can effortlessly model the numeric block for training and recognition purpose. Matlab program generates a GUI that can train and recognize the image of a baby's parent. The proposed system is user friendly and very quick in generating results. A fast and efficient system had been developed for the purpose of face recognition among the newborns

References

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Index Terms

Computer Science

Image Processing
An Enhanced Approach for Face Recognition of Newborns using HMM and SVD Coefficients

Keywords
Newborn identification  Face Recognition  Hidden Markov Model  Singular Value Decomposition