CHAPTER 8

CONCLUSION AND FUTURE SCOPE

8.1 CONCLUSION

This work aims to improve the classification accuracy of the conventional binary patterns that were used to analysis medical images by reducing the false positives. Thus we propose few novel binary patterns that were rotational invariant reduce false positives and generate grouped histogram feature vectors. In every image, based on its resolution there will be variation among the intensity level between nearby pixels in the neighborhood. Texture of an image describes the characteristic of those intensity surfaces of the image. Rotational Invariance is considered to be the important applications of the texture patterns. In our work we have proposed one such pattern that will not be affected by physical rotation of the image.

Hough Transform is one of the unique approaches for the classification of mammogram as it has the ability to detect the edges of an image. Under the assumption of having abnormal images more than the normal images in sparse conditions, the Hough transform approach can be used as one class classifier with excellent accuracy rate. The better performance of the Hough transform is due to its directional feature and ability to detect the edges more accurately.

Binary texture patterns had already been acknowledged as an essential modality in the field of image processing for the analysis of face recognition and medical images. The investigation led to the proposal of various novel binary texture patterns for high accuracy classification which resulted in efficient classification of normal and abnormal mammogram images.
The proposed binary patterns provide consistent accuracy rate than other existing binary patterns. While the existing LBP technique generally has the accuracy less than 90%, the proposed binary patterns produces greater accuracy upto 97%. The basic techniques were also implemented and were compared with the proposed techniques with a Classification problem involving several images from MIAS database using SVM Classifier. For the given images the modified LBP provides better accuracy in classifying the normal images whereas modified LGP provides consistent accuracy in classifying both normal and abnormal images.

The proposed patterns eliminate the lengthier histogram format thereby increasing the computational speed and accuracy. The experimental results emphasize the importance of increased accuracy rates in the binary textural patterns that was proposed. These results can be considered as another confirmation that the proposed binary patterns can be further employed as a powerful technique for high accuracy classification Computer Aided Detection systems.

8.2 FUTURE SCOPE

Local Binary Texture Patterns has been widely used in so many applications in the present decade. Variations of intensity levels play a major role in face detection, recognition and classification process. Texture patterns with greater accuracy are the need of the hour to detect and classify faces. The proposed binary patterns can be employed further in face detection, face recognition and face classification applications.

As part of the future work, we have planned to implement the proposed work using various classifiers so that the comparison analysis can be performed. Mammogram images from other databases can also be used for further analysis.