

CHAPTER 7

CONCLUSION AND FUTURE ENHANCEMENTS

In this work, three new techniques for disease prediction and food recommendation namely multiclass SVM based food type identification and calorie estimation, an ensemble based rule generation for diagnosis of diabetes, prediction and recommendation, cluster based boosting using x-means clustering in high dimensional data are proposed to provide efficient disease prediction and food recommendation.

7.1 CONCLUSIONS ON FOOD RECOGNITION AND CALORIE ESTIMATION

In this research work, a new image segmentation and classification methods for both single and mixed type of food images has been proposed. This is useful for developing a portable application which can provide dietary advice for diabetic patients by automatically estimating the calorie of their food intake. Five major steps have been carried out in this work for measuring calorie values. Experiments were conducted on a newly created food image dataset with 1200 images of various types of fruits belonging to 6 food classes and it is observed that the proposed model provides better accuracy than the existing work due to the use of effective segmentation and classification methods.



7.2 CONCLUSIONS ON ENSEMBLE BASED RULE GENERATION FOR DIAGNOSIS AND PREDICTION OF DIABETES DISEASE

In this research work, an ensemble system for diabetes diagnosis has been developed. Moreover, an Integrated SVM classifier has been used for diagnosing diabetes disease, where a comprehensibility representation of rule-based explanation was provided. The generated rule sets are considered as a second opinion tool for disease diagnosis in order to screen the people with undiagnosed diabetes. Result obtained from this work shows that the proposed integrated model provides high quality results in terms of diagnosis and highest performance than the existing systems. From the results, it can also be observed that the proposed algorithm performs better in terms of classification accuracy than the other existing data mining techniques.

7.3 CONCLUSIONS ON ENHANCED CLUSTER BASED BOOSTING IN HIGH DIMENSIONAL DATA

In this work, a cluster based boosting using x-means clustering algorithm for high dimensional data is proposed. The Global Redundancy Minimization framework is applied on high dimensional data to obtain a more compact and non-redundant features. Cluster based boosting algorithm used in this work addresses various limitations on the supervised learners. The limitations such as filtering for subsequent functions and overfitting of subsequent functions are mitigated using appropriate level of boosting and by learning only similar data. Finally, the experimental results obtained from this research work show that CBB achieves higher performance than other boosting techniques.



7.4 FUTURE WORKS

Future works in this direction could be the use of fuzzy logic based clustering techniques for classification of food images for accurate type identification and recommendation. Moreover, the work can be further extended with rules in order to predict the further associated disease and also to fine tuning the cluster based boosting parameters effectively.

