

and it has proved a reliable classifier again in Boosting after the stacking ensemble technique results on LPQ features. RF with ICA1 on face and FP traits has yielded 85.95 and 86.11 respectively and it is the best performer, RPART and SVM is also performing better on ICA1 features.

TABLE III: Accuracy On Bagging Ensemble Technique Applied On Different Classification Models.

Algorithms	Face_LPQ	FP_LPQ	FACE_ICA1	FP_ICA1
SVM Radial	89.46	91.96	85.68	85.51
RF	88.26	90.18	86.13	86.07

Table-3 tabulates the results obtained from Bagging Ensemble Technique. Here we have conducted experimentation considering only SVM and RF classifiers, because the remaining classifiers considered for experimentation for Stacking and Boosting Techniques showed very poor performance and hence those results are not tabulated. SVM radial on LPQ features for both the modalities has obtained good results. RF on ICA1 features is the best performer compared to SVM.

5. Conclusion

The Extensive Experimental results on ensemble techniques with different classification algorithms shows that there is no significant increase in performance with the results tabulated from all the tables, there is slight increase of accuracy in Boosting when compared with stacking. Ensemble techniques however has higher computational cost and usage of more memory space. Our experimental results convey important guidelines by tabulating comparative results on ensemble machine learning techniques, which classifier's performance is better. We have employed the best feature extraction methods LPQ and ICA1. From the results obtained, we can infer that committing more time on selection of discriminating and the best feature extraction algorithms with dimensionality reduction techniques would yield good performance in overall system recognition or verification rate and also the computation time is reduced rather than relying on more computation consuming techniques such as Stacking, Boosting and Bagging.

6. References

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