

Hyper Tuned RBF SVM: Approach for the Prediction of the Breast Cancer

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Abstract : Machine learning (ML) involves developing algorithms and statistical models that enable computers to learn and make predictions or decisions based on data without being explicitly programmed. Because of its unlimited abilities ML is gaining popularity in medical sectors; Medical Imaging, Electronic Health Records, Genomic Data Analysis, Wearable Devices, Disease Outbreak Prediction, Disease Diagnosis, etc. In the last few decades, many researchers have tried to diagnose Breast Cancer (BC) using ML, because early detection of any disease can save millions of lives. Working in this direction, the authors have proposed a hybrid ML technique RBF SVM, to predict the BC in earlier the stage. The proposed method is implemented on the Breast Cancer UCI ML dataset with 569 instances and 32 attributes. The authors recorded performance metrics of the proposed model i.e., Accuracy 98.24%, Sensitivity 98.67%, Specificity 97.43%, F1 Score 98.67%, Precision 98.67%, and run time 0.044769 seconds. The proposed method is validated by K-Fold cross-validation.

Keywords : breast cancer, support vector classifier, machine learning, hyper parameter tuning

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