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Comparison of Selected Algorithms on Breast Cancer Classification

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Abstract

Over the years, machine learning techniques have been exhaustively used to diagnose the presence of several diseases from medical images. This has achieved acceptable results which has resulted in the use of computer-aided design (CAD) systems as decision support systems for disease diagnosis. However, the best machine learning technique to use for a particular disease diagnosis still remains an issue of argument as many factors are responsible for the accuracy results obtained from these machine learning techniques. This study explored the use of support vector machine (SVM), decision tree classifier (DTC), Naive Bayes (NB), K nearest neighbors (KNNs), sequential model (SM), and discriminant analysis algorithm for the detection and classification of tumors in patients into benign and malignant. Wisconsin breast cancer dataset was used to train and test the machine learning techniques while accuracy, precision, and sensitivity were used as the performance evaluation metrics. Among the techniques used, DAL and SM achieved the highest classification accuracy of 95.80% which was closely followed by SVM and Naïve Bayes.

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