

عنوان مقاله:

A hybrid classification approach Based on Improved Differential Evolution Algorithm for Breast Cancer Diagnosis

محل انتشار:

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خلاصه مقاله:

Breast cancer is one of the most common malignant tumors and the main cause of cancer death among women worldwide. The diagnosis of this type of cancer is a challenging problem in cancer diagnosis researches. Several research before have proved that ensemble based machine learning classifiers are able to detect breast cancer spot more accurate. However, the success of an ensemble classifier highly depends on the choice of method to combine the outputs of the classifiers into a single one. This paper proposes a novel ensemble method that uses modified differential evolution (DE) algorithm generated weights to create ensemble of classifiers for improving the accuracy of breast cancer diagnosis. This paper proposes an ensemble-based classifier to improve the accuracy of breast cancer diagnosis. As the performance of DE algorithm is strongly influenced by selection of its control parameters, local unimodal sampling (LUS) technique is used to find these parameters. The two most popular classifiers support vector machine (SVM) and K-nearest neighbor (KNN) classifiers are used in the ensemble. The classification is then carried out using the majority vote of the ensemble. The accuracy of the presented model is compared to other approaches from literature using standard dataset. The experimental results based on breast cancer dataset show that the proposed model outperforms other classifiers in breast cancer abnormalities classification with 99.46% accuracy.

کلمات کلیدی:

Breast cancer diagnosis, local unimodal sampling, differential evolution algorithm, majority vote, Accuracy.

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