

Abstract

Myocardial infarction (MI) is a serious cardiovascular disease with a high mortality rate worldwide. Early detection and consistent treatment can reduce early mortality from cardiovascular disease. However, efficient models are needed for the early detection of heart disease without the need for trained clinical experts. MI studies using PCG signals that implement ensemble learning models are still seldom performed with poor accuracy and low detection rates. This work aims to implement an ensemble learning model for classifying MI using phonocardiogram (PCG) signals into different classes. At this stage of research, several classification algorithms such as Random Forest, Logistic Regression, and AdaBoost are used as basic models for ensemble learning based on features extracted from audio signals. After evaluating the models' performance, each model's results show boosting 97%, bagging 97%, and stacking has an accuracy of 96%. These results demonstrate that our system can classify MI within his PCG data appropriately and with high accuracy. We believed that the results of this study will improve the diagnosis and treatment of heart attacks more effectively and accurately.

Keywords: multiclass classification, myocardial infarction, Phonocardiogram (PCG), ensemble learning.