

## ABSTRACT:

Phonocardiography (PCG) is one of the non-invasive method to analyze the condition of human heart. The process of heart muscle contractions and closure of the heart valves creates vibrations which are audible as sounds, which can be examine by the qualified *cardiologists*. *Evolving an algorithm to diagnose whether patient's heart works accurately* or should need to be referred to an expert for further examination that would significantly improve the quality of healthcare system. The aim is to develop an algorithm which will differentiate between the normal and the abnormal heart by using the sounds as recorded by the phonocardiogram. We are going to use the classifiers which will classify between the normal and the abnormal heart sounds.

The time-frequency features which were extracted from the phonocardiogram (PCG) and that will be used as an input for the Adaboost classifier.

A second classifier which is convolution neural network (CNN) that was used for PCGs cardiac cycle which were decomposed into four frequency bands.

At the end the final decision rule is used which were based on the ensemble of classifiers to classify the normal and the abnormal heart sound which is based on the combining outputs of the Adaboost and the convolution neural network. There was a training dataset at which the algorithm was trained, according to the result the normal heart sounds are 2575 and the abnormal heart sounds are 665.