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Heart Sound Segmentation and Classification

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***Abstract*: There are well known methods for heart disease diagnosis like ultrasound and electrocardiogram, but these methods are very expensive. Our main objective is to make a machine learning model that can determine whether the heart sound of patient is normal or abnormal. S1 and S2 are the fundamental heart sounds (FHS). In this paper we roughly define an approach that includes segmentation of heart sounds into S1 and S2 and then classifying them into normal or abnormal. For classification we use C4.5 algorithm.**

***Keywords*: C4.5 algorithm, Electrocardiogram, Fundamental Heart Sounds (FHS), Segmentation, Ultrasound.**

1. Introduction

Annually many of the people die because of cardiovascular diseases not only in India about across the globe. This machine learning model helps in predicting early signs of heart diseases. It performs two tasks: Segmentation of heart sounds (audio files) and classification of heart sounds into normal or abnormal. Segmentation simply means division of something into parts. Here segmentation of heart sounds means locating S1 and S2. Once segmentation is done then heart sound is classified into normal or abnormal. Cardiologists can use this machine learning model to predict early signs of heart disease. If heart sound is found abnormal then patient is recommended for further treatments.

2. Literature review

There are different approaches to heart sound classification. Research papers and year of publication is mentioned in the table.

Table 1
Literature survey

Title of the Paper	Year of publication	Name of Author
Heart Sound Segmentation-An event Detection Approach using Deep Recurrent Neural Networks"	2018	Elmar Messner
Classifying Heart Sound Recordings using Deep Convolutional Neural Networks and Mel-Frequency Cepstral Coefficients" Computing in Cardiology Conference(C in C)	2016	Jonathan Rubin

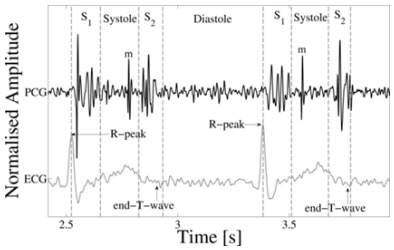

Fig. 1. Hearts sounds

The paper [1], [2] are well known methods for heart sound classification. The paper [3] focuses on Springer's algorithm.

3. Conclusion

This paper presented an overview of heart sound segmentation and classification.

References

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