

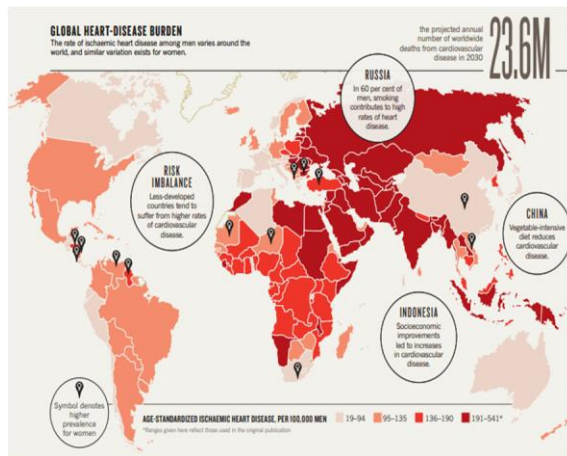
# Biomedical Signal Analysis and Classification

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## Introduction

Cardio vascular diseases are disorders of the heart and blood vessels and include cerebrovascular disease, coronary heart diseases, rheumatic heart disease and other conditions. Cardiovascular diseases are the number one cause of death globally, more people die from CVDs than from any other disease. are the highest cause of deaths in developing countries. 75% of the deaths are caused in low income countries.

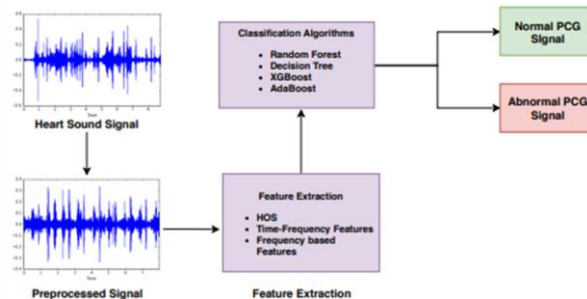


## Literature Survey

The researcher of this project observed that most papers that gave high results were very time consuming to train.

The researcher also observed how a certain type of time-frequency features out-perform most of the statistical and CNN based features.

## Methodology



## Results

	Normal	Abnormal	
Normal	True Negative 1849	False Positive 108	Specificity 94.5
Abnormal	False Negative 56	True Positive 590	Sensitivity 91.3

$$\text{Mean Accuracy} = \frac{94.5 + 91.3}{2} = 92.9$$

## Conclusion

The researchers in this manuscript used classification with XGBoost and combined them with optimal features which resulted in high rates of sensitivity and specificity.

