



A Novel Algorithm for the Detection of Cardiac Arrest using Deep Learning

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ABSTRACT

In today's era cardiac arrest and other heart diseases are the foremost common problem in the majority of individuals, and there are various factors that act as the backbone of this problem like people are not paying attention to health due to work stress, laziness, substandard quality of food that results in increased cholesterol and untimely diagnosis of heart disease due to lack of technology, methods used in diagnosing these diseases and consequently having a lot of tests [1]. A lot of research and medical supporting systems are developing day by day; however, every system has its various features or advantages and limitations, unknown to either side. This report aims to study different machine learning algorithms basically working on Deep Learning features on datasets to predict the possibility of a cardiac arrest based on various controlled and uncontrolled variables. Here, we tried to create a python algorithm that detects a person may or may not have a possibility of heart attack by studying their medical data

KEYWORDS: Machine Learning, Predicting Cardiac Arrest, Linear Regression

I. INTRODUCTION

A. Objective

Our Objective of this project is to study different Machine Learning Algorithms on datasets to predict the possibility of a Cardiac Arrest of any individual, based on his/her various Controlled and Uncontrolled variables [2].

We will be predicting the possibility of Cardiac Arrest in patients using Deep Learning Techniques and Python codes.

B. Motivation

The motivation for doing this project was primarily an interest in undertaking a challenging project in an interesting area of research. The opportunity to find out

a few new area of computing not covered in lectures was appealing. This area is possibly an area that we might study at the postgraduate level.

C. Background

In today's era, cardiac arrest and other heart diseases are the foremost common problem within the majority of individuals, and there are various factors that act because the backbone of this problem like people are not paying attention to health mainly because of work stress, laziness, substandard quality of food that results in increased cholesterol and untimely diagnosis of heart disease due to lack of technology, methods used in diagnosing these diseases and consequently having a lot of tests.

A lot of research and medical supporting systems are developing day by day, however, every system has its various features or advantages and limitations which are unknown to either side.

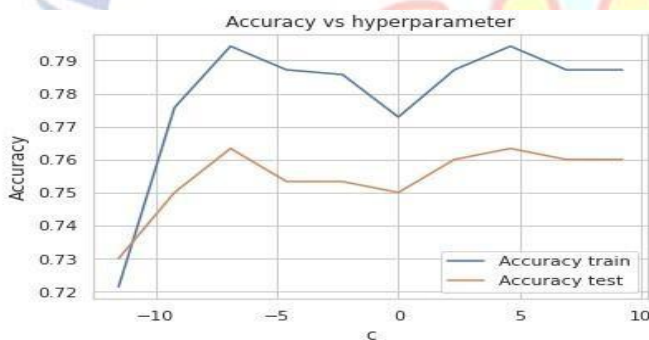
II. METHODS

Methods Used

CNN and VGG 16 methods have been used.

The proposed convolution architecture contains the input layer followed by a convolution layer with 16 kernels along with an activation function as ReLU, in the subsequent layer 25% of the nodes are dropped by dropout layer. Again, the convolution layer was performed with eight kernels with previous parameters, also applied the dropout layer with 25%. For prediction probability calculations, added an output layer.

Linear Regression Accuracy Graph



optimal c for which auc is maximum : 100

III. ADVANTAGES

- Patients receiving disease prediction report will have improved self rated health, increased knowledge and behavior related to diet and medication.
- This system in predicting death within a period of 12 months in patients with cardiovascular disease.
- The purpose of the model is to predict outcomes of future patients, such as mortality, based on information from previous events
- This system will decrease the death rate by predicting their stage of the disease.

IV. CONCLUSION

In this project report, we proposed a way for heart condition prediction using deep learning techniques, these results showed an excellent accuracy standard for producing a far better estimation result. Sample results

of pulse are to be taken at different stages of an equivalent subjects, we discover the knowledge from the above input via ML Techniques which incorporates Deep Learning algorithms and Python coding. Firstly, we introduced a support vector classifier based datasets, and using various algorithms we predicted whether or not a patient will get a heart attack . We also presented an internet page using HTML codes for creating it user-friendly [5][6].

In the future, the work can be enhanced by developing a web application based on the Random Forest algorithm as well as using a larger data-set as compared to the one utilized in this analysis which can help to supply better results and help health professionals in predicting the heart disease effectively and efficiently.

Performance of model

Performance Table

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In [239]: results
```

Out[239]:			
	Model	Train-Accuracy	Test-Accuracy
1	Logistic Regression	0.794	0.763

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