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A Review Paper on Predicting Different Types of Strokes

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Abstract: ***Now-a-days stroke is one of the most life threatening disease to all most all theage groups. It injures the brain similar to "heart attack" which injures the heart. Stroke is given the second leading cause of death in many of the developing countries. Every four minutes someone dies because of stroke, and itis said that up to 80% of strokes can be prevented if we identify them in early stages orpredict the occurrence of stroke in its early stage. The majority of research has focused onthe prediction of heart stroke, while just a few studies have looked at the likelihood of a brainstroke. Brain disorders can represent a tickingbomb under Europe's economy due to their enormous societal costs, which are set to growwith the aging of the European population. Addressing these large costs for the societyrequires an intensified research and novel solutions. To face this societal emergency, we need to develop a strong network for both basicand clinical brain research.***

I. INTRODUCTION

Stroke is a medical condition in which poor bloodflow to the brain results in cell death. Signs and symptoms of a stroke may include an inability tomove or feel on the one side of the body, problems understanding or speaking, dizziness, or loss of vision to one side. Signs and symptomsoften appear soon after the stroke has occurred. Machine Learning can now predict the occurrence of a stroke. Machine Learning algorithms are useful for making accurate predictions and analyzing data. The majority of previous stroke research has focused onpredicting heart attacks. Little or no attention hasbeen paid to brain stroke.

Methods used:

1) *Classification Algorithm:* This method is based on using machine learning to predict the occurrence of stroke. Adataset with various physiological characteristics has been selected as.These features will be analyzed later andused for final predictions.
2) *Using Decision Tree And Naive Bayes:* A decision tree is a decision support tool that uses a tree like graph or model of decisions and their possible consequences. It is one way to display an algorithm that only contains conditional control statements. Naive Bayes algorithms are mostly used in sentiment analysis, spam filtering, recommendationsystems etc. They are fast and easy to implement
3) *Using Image Processing:* Medical diagnosis via image processing andmachine learning is considered one of themost important issues of artificial intelligence systems. In this paper, we present a machine learning approach to detect whether a Magnetic Resonanceimaging (MRI) image of a brain containsa tumor or not.
4) *Brain Disorders Review:* Any deformities,dysfunction and disease condition in the brain affect the whole body. The brain is susceptible to neuronal disease and neurons or tissue infection. Damage can be caused by trauma (psychiatriccondition), or a loss of blood supply (accidental or environmental factors)known as a stroke
5) *Cost Of The Brain Disease In Europe A Grand Challenge:* There is no way toescape from the fact that brain disorders are a major public health problem in Europe and the rest of the world. The WHO global burden of disease study andtwo major pan-European studies on the cost of brain disorders were of seminal importance in disclosing this major challenge. They demonstrated that,beyond doubt, brain disorders are the major public health problem in Europe and all other high-income countries. It showed that brain diseases are responsible for 35% of Europe's totaldisease burden. This figure was, however, calculated in terms of so-calledDALYs, or disability-adjusted life years.
6) *By Using Robotized CT MRI Scans:* Mostinvestigations performed on the robotized analysis of stroke and its subtypes were on the picture preparing methods and CT scan and MRI. An artificial neural system gives a general method for moving toward issues.

II. LITERATURE SURVEY

In order to get required knowledge about variousconcepts related to the present analysis existing literature were studied. Some of the important conclusions were made through those are listed below.

1) Various datasets were considered to advance the implementation. Suitable datasets for modeling were collected from all available datasets. After collecting data preprocessing. s. Logistic regression, the K-Nearest Neighbor algorithm, and the Naive Bayes classification algorithm are used. After two different models are built, they are compared using two precision metrics. Comparing the models reveals the best model in terms of accuracy metrics.
2) Decision tree is one of the important methods for handling high dimensional data. Tree based learning algorithms are considered to be one of the best and mostly used supervised learning methods. Tree based methods empower predictive models with high accuracy, stability and ease of interpretation. Unlike the linear models, they map non-linear relationships quite well. “Computer Methods and Programs in Biomedicine” - Jae–woo Lee, Hyun sun Lim, Dong-wook Kim, Soon-ae Shin, Jinkwon Kim, Bora Yoo, Kyung hee Cho – The Purpose of this paper was Calculation of 10-year stroke prediction probability and classifying the user's individual probability of stroke into five categories.
3) Medical images are one of the most importantresources used by doctors to diagnose brain tumors. A tool with high accuracy to automate this process can be extremely valuable. However, because of issues related to legal liabilities, such a tool cannot replace the expert opinions of trained physicians. In this work, They designed a system to correctly classify new brain Magnetic Resonance imaging (MRI) images into images with tumor and images without tumor. This has to be done with no human intervention. In order to apply several types of classifiers, it is needed to preprocess several aspects of the images such as the color, area of interest, image file extension,and contrast level.
4) Due to the involvement of non-genetic factorsin the progression of human brain disorders, the research has been focused more on the study of epigenetic factors. In this context the data available from the GWAS and the databases developed for neurodegenerative diseases have proven a great boon in the area. Although there are several models to study the neurodegenerativedisease but still there is a need for other specialized techniques, especially for neuropsychiatric disorders due to the overlappingof symptoms. BD gene has attempted not only toaddress the genetic complexities of bipolar disorders but also overlapping symptoms of both schizophrenia and Major Depressive Disorders (MDD).
5) The EBC effort to estimate burden of diseaseand cost of illnesses was and still is particularly useful in this scenario. The data mentioned in thisstudies are often reported and used in the discussion of priorities, such as decisions on access to health care and investments in researchand development. It is necessary to state that suchpriorities are complicated and that other types of information are important. In our view, the present data can be exploited to illuminate key policy decisions, which include investment inresearch and development as the main instrumentfor reducing the burden and cost of brain diseases.
6) An Artificial neural system based expectationof stroke illness enhances the analytic exactness with higher consistency. Using robotized model to the bigger dataset can be effectively prepared. Dataset is gathered from medicinal institutes, It consists of patients history, risk factors, as well assymptoms of stroke. When the data is fed the prediction occurs.

III. GAPS IN LITRATURE SURVEY

In [1] classification algorithms like logistic and naive bayes algorithm used, which can only tell us that weather a person is normal or encounteredwith stroke along with this a confusion matrix is generated.

In[2] tree and naïve bayes method is used for predicting different types of stroke. Which isbasically a lengthy and a time consuming procedure. Tree wise decision making would provide a delayed result, but sentiment analysis, spam filtering, recommendation are able by the naive bayes.

In[3] a model is developed for scanning the report which can perform the CT and MRI scanning. By entering the detailed set of information and the x-ray of a patient by using image processing it divides the whole image in pixels and perform theoperation. This could be a delayed process but nohuman involvement is done in this process.

In[4] brain disorder is nothing but non functionality of the due to various reason. Disorder may be of may thing like trauma, tumor, lack of supply of oxygen, blood , misplacing of nerves, damage to brain, cerebral disease or its disorders. This study is about what are the causesof the brain malfunctioning and how it can be cured medically.

In[5] as the stroke is a very vast leading cause ofdeath it is a huge burden on the economic status of a individual. As the medical expenditures are over the skies in the Europe it is one of the majorcause of cost expenditure. In 2003, the EBC decided to fill this knowledge gap by providing sound estimates of the cost of as many brain disorders as data would allow for all of Europe. Since data for each disease were only available in a few countries, a health economic model was developed using the imputation of missingvalues. The calculations were based on the cost ofa given disorder in one single person for 1 year and the 1-year prevalence of the disorder. More than 100 epidemiology and health economic experts made the best possible estimates from existing data.

In[6] An Artificial neural system basedexpectation of stroke illness enhances the analyticexactness with higher consistency.

Usingrobotized model to the bigger dataset can beeffectively prepared. Dataset is gathered frommedicinal institutes, It consists of patients history, risk factors, as well as symptoms of stroke. When the data is fed the prediction occurs.But training a robotic model quite difficult, and it would be bit expensive.

IV. CONCLUSION

This paper has presented an literature survey or review on various methods of predicting stroke and various algorithms. The main objective of this paper is to find the gaps in existing literature.The different approaches are reviewed and foundthat classification based model is best in most of cases because it gives us the prediction and goodaccuracy moreover it is simple for any user to use.
By considering the requirement we can further reduce the drawback of the other methods and in future can implement a better system to improve the performance of proposed algorithm.

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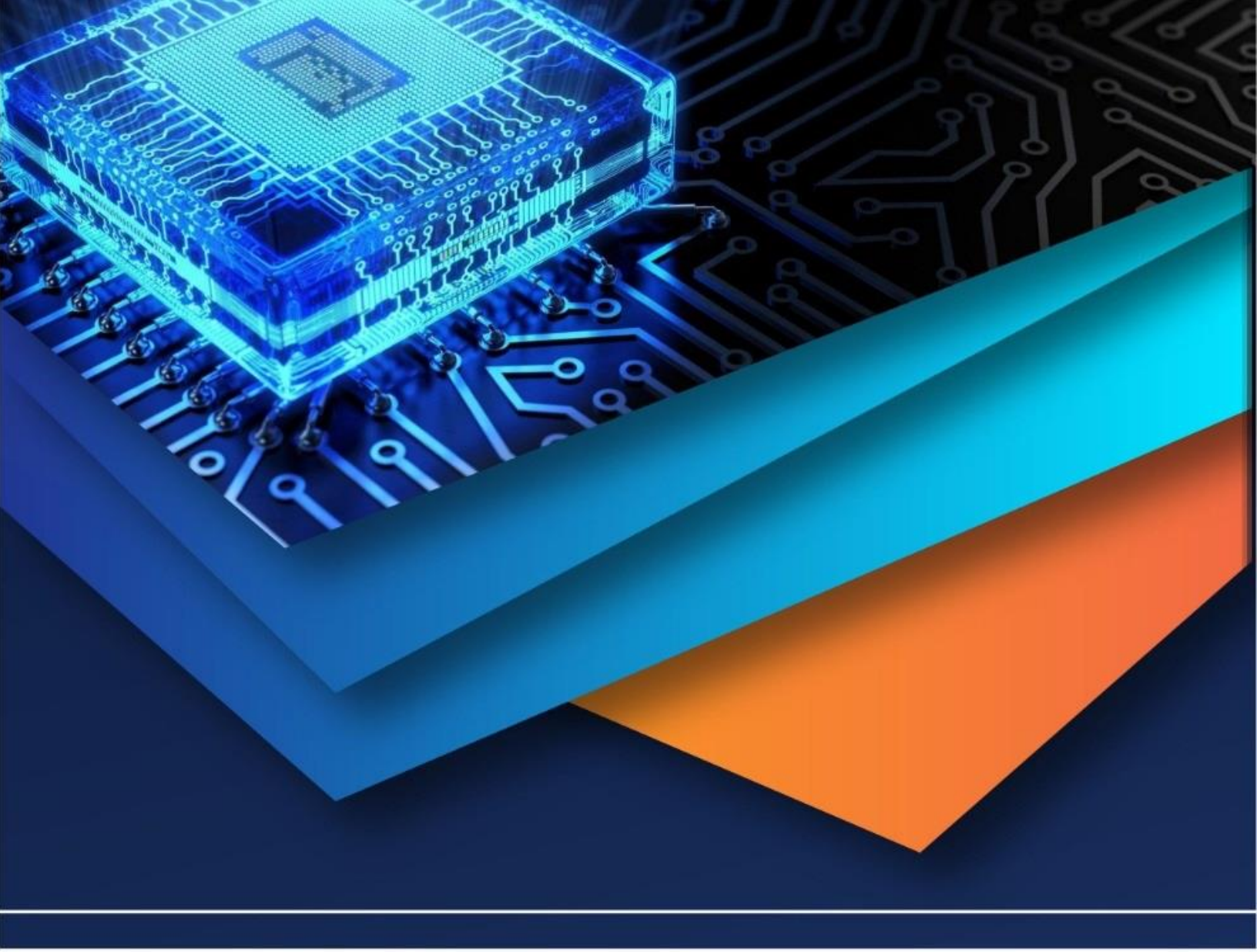

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