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Short Communication

Machine Learning in Healthcare

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Introduction

Applications of machine learning techniques (ML) are having a significant impact on a number of expanding industries, including the healthcare sector. ML is a part of artificial intelligence (AI) technology that primary objective to increase the efficiency and precision of medical professionals' work. AI presents a significant opportunity in the healthcare sector as most countries are now struggling with overburdened healthcare systems and a dearth of competent medical personnel. Healthcare data is expanding daily and can be utilized to choose the best study sample, gather additional data points, and assess participant data from ongoing studies.ML-based methods/algorithms are employed in the early detection and diagnosis of numerous diseases For a very long time, early disease prediction and detection have been a crucial area of research for the diagnosis of all diseases. Machine-learning (ML) algorithms have proved quite efficient in disease detection and decision making in healthcare. While most ML algorithms achieved good accuracy and it is very important area as it deals with real time patient. The need for a personalized medicine approach to healthcare has been highlighted by current trends in research due to the complexity of providing better healthcare to everyone.

Machine Learning (ML) is a subset of artificial intelligence (AI), which is one of the most rapidly growing and utilised technical subjects in all over globe. Big data, also known as structured and unstructured data that has grown significantly, has made machine learning (ML) essential because it is impossible to handle this data using other approaches [1]. The field of machine learning is where computers are taught to mimic human behavior. The utilization of data and algorithms, which are composed of statical tools, is the focus. The correct processing of a huge number of data, creating a machine learning model, training it, and refining it to achieve high accuracy are all components of ML techniques [2].

The learning of machines or models in ML depends on the raw data so we can say that data set is a key component to make a proper model in ML. Data can be either structured or unstructured. Based on this data the ML model forecast a pattern regarding the data and uncover the hidden pattern if any. The accuracy is then calculated by comparing the prediction to the known answer, which is commonly known as output, i.e. the structured data. The model then attempts to locate known data points in order to increase accuracy even further. This is how the machine learning technique trains and produces models that assist the machine in learning human behavior [3].

Need for machine learning in healthcare

Over the past few years, the healthcare system has improved significantly, as has our capacity to treat complex disorders. Machine learning has been successfully incorporated into various diseases in recent years, helping to best diagnose and treat patients. One of the most advanced branches of artificial intelligence is machine learning, and many businesses are working to support it [1]. The usage of machine learning (ML) approaches is growing in popularity. These techniques use algorithms to enable data-driven learning and may be applied in a variety of contexts, from business to healthcare. As previously indicated, the constant development of new technology and concepts also frequently results in changes in healthcare [4]. With the help of ML techniques physicians and administrators can make timely, informed decisions about patient and mortality rate of any disease can be reduced [2,5].

Machine learning approaches increase productivity and dependability while lowering the cost of computational operations. Additionally, it can quickly and accurately create learning models through a variety of data analyses. Tools with machine learning capabilities can process enormous amounts of data that are much too massive for humans to comprehend [4]. For instance, health data may consist of demographic information, photographs, test results, genomic information, medical records, and information gathered from a variety of other sources. These data samples are produced or collected using a variety of platforms, including network servers, electronic health records (EHR), genetic data, personal computers, smartphones, mobile applications, and wearable technology [6].

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