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ARTIFICAL INTELLIGENCE ALGORITHMS, MEDICAL DIAGNOSTIC SYSTEM

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ABSTRACT

Counterfeit insights (AI) has advanced quickly since the late 1980s. Expanding of healthcare datasets and its execution, the past two decades have seen an exponential advance in distributions on AI. Be that as it may, with the approach of expanded computational control, accessibility of AI gadgets was expanded. There are two fundamental gadgets in AI, machine learning, where organized information (i.e. pictures, EP and hereditary information) are analyzed and common dialect preparing, where unstructured information are analyzed. Both AI gadgets have been progressed in awesome detail over the past two decades for its strategies, calculations, and applications. In any case, different endeavor sand unused strategies of AI have been utilized in later a long time and few maladies such as cancer, anxious framework malady, cardiovascular illness, liver malady, intrinsic cataract malady, etc. were possibly analyzed utilizing AI. Presently a day an progressed strategy called profound learning has started a boom of AI and incredible alterations of diagnos tic therapeutic imaging frameworks like endoscopic conclusion, pathology and dermatology will be anticipated within the close future.

Keywords: Deep Learning, Machine Learning, Genetic Algorithms.

I. INTRODUCTION

For the healthcare sector, disease diagnosis research is crucial. Any ailment or group of ailments that causes pain, sickness, malfunction, or eventually death in a person is considered a disease. A person's physical and mental health can be negatively impacted by illness, which can drastically change their way of life. The study of disease causation is referred to as the "pathological process" [1]. Medical professionals interpret signs or symptoms to determine the cause of a disease [2]–[4]. Determining a person's disease based on their symptoms and indicators is another aspect of diagnosis [5]. A medical test or other diagnostic procedure is often carried out during this course of treatment. A medical practitioner forms an authentic diagnosis by utilizing a series of procedures that allow them to collect as much information as possible [6]. The most challenging task for a medical care professional to accomplish is diagnosing a patient's condition, which is critical to their treatment. The process of diagnosing could be very complex and time-consuming. In order to minimize uncertainty in medical diagnosis, medical professionals collect empirical evidence to determine the illness of a patient. If the diagnosis process is incorrect, the patient might not get the right treatment .

1.1 INTRODUCTION TO APPLICATION OF AI IN MEDICAL DIAGNOSIS

A plethora of books, articles, and data sets for various AI applications were available during the past ten years. A variety of AI algorithms, either by themselves or in conjunction with other techniques, were examined and effectively used in the diagnosis of neurological disorders, stroke, Alzheimer's disease, skin cancer, acute ischemic stroke, and other medical conditions. Fiszman et al. [18] originally presented the NLP as a highly versatile reading tool for physicians to analyze the language of chest X-rays and to treat antiinfection patients. Sweilametal, another outstanding medicionist, came next. reviewed SVM in cancer diagnosis and presented the least square support vector machine (LSSVM) and active set strategy [42].

1.2 INTRODUCTION TO FUZZY LOGIC AND DISEASE DIAGNOSIS:

An overview of recent studies on fuzzy logic-based related topics opens this section. We will discuss the fuzzy logic approach to illness diagnosis later. Fuzzy logic provides adaptable answers to difficult problems. Fuzzy logic is regarded as a dependable method for systems that make decisions, such as expert systems or pattern categorization systems [18]–[21]. These frameworks provide a quick and simple way to conduct clinical evaluations. They are also useful when there isn't a clinical specialist or expert present. Based on the body of information incorporated into them by subject-matter specialists or experts, these frameworks generate outcomes.

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II. METHODOLOGY

This section covers our addition to the body of current knowledge, pertinent survey research on the diagnostic process, and state-of-the-art applied AI methods for disease diagnosis. An automated monitoring study on matters pertaining to healthcare A study on infections was conducted by Van Mourik et al [14]. In comparison to manual surveillance techniques, the authors of this paper have explained how autonomous surveillance systems based on machine learning algorithms offer better performance and dependability. Regression models can be used to increase the sensitivity and effectiveness of monitoring efforts, according to another review finding.

2.1 EXISTING WORKS USING DEEP LEARNING

Deep Learning is an artificial intelligence technique that creates decision-making patterns by modeling the way the human brain works. Unlike machine learning approaches, which must first split a problem statement into separate sections, and then combine their results at the end, the goal of the Deep Learning approach is to solve the problem from start to finish. In the medical domain, deep learning performs better than standard machine learning models. [65]. The term "deep learning" refers to the application of deep neural network models. The main building block of the neural network consists of human brain simulations for the neurons.

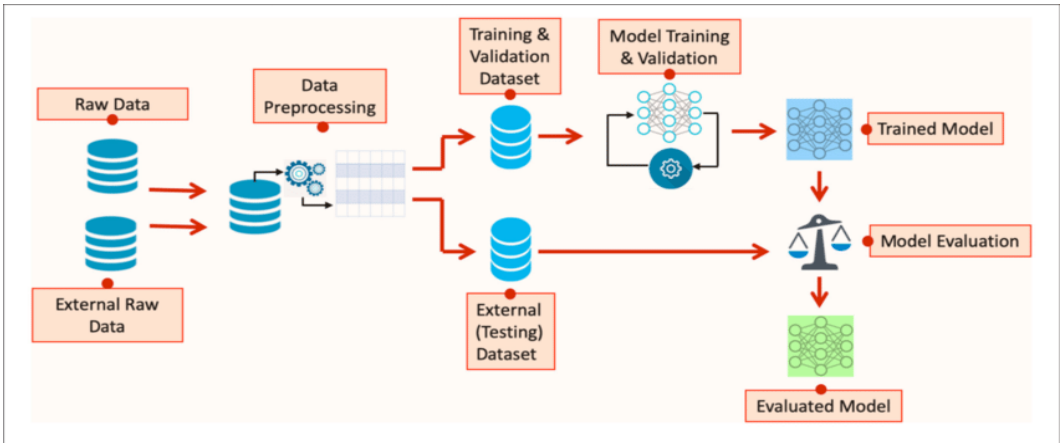

Fig 1. Completed Guide to AI Algorithms

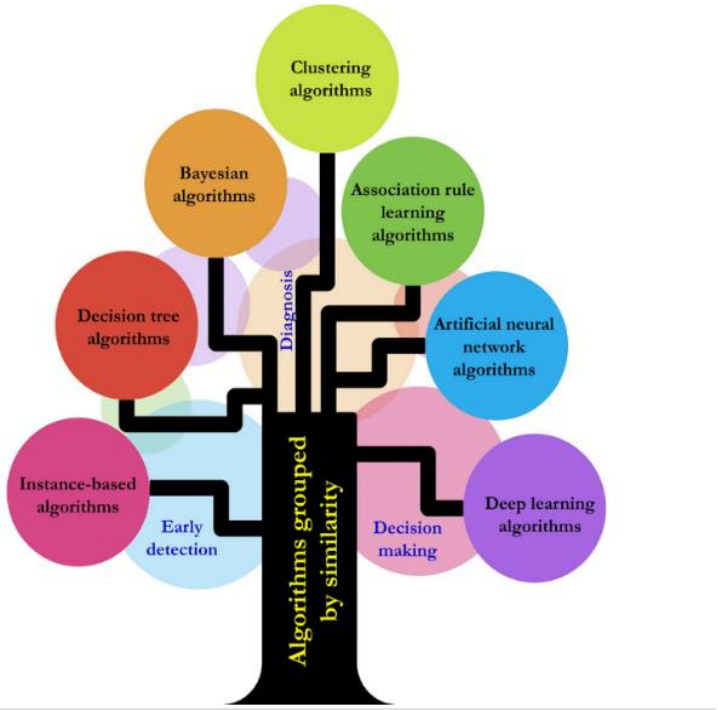

Fig 2. AI Algorithms Groups

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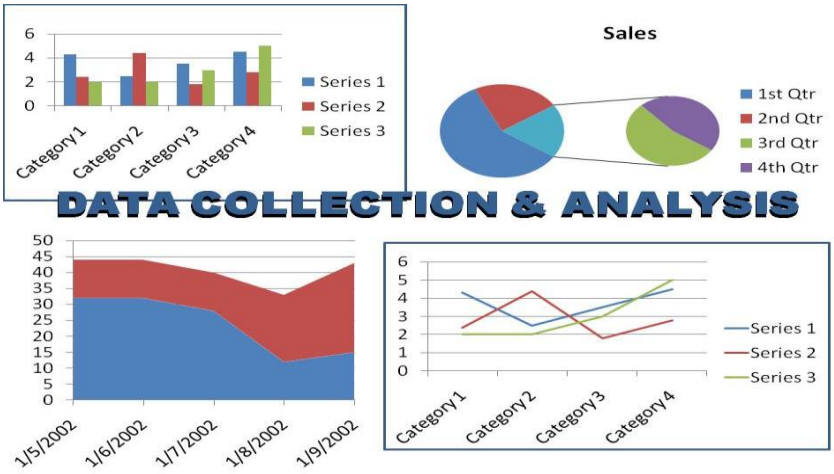

Fig 3. Data Collections and Analysis

III. FUTURE SCOPE

AI is set to transform transportation comprehensively, bringing advancements such as autonomous buses, trucks, and flying vehicles. By utilizing machine learning algorithms and real-time data, AI can improve traffic management, decrease accident rates, and shorten commute times.

IV. CONCLUSION

Recent developments in AI methods enable the effective use of AI in healthcare. The question of whether AI expert systems will eventually take the place of human doctors has even become a hot topic of conversation. However, we take into account the possibility that an AI expert system could help a human doctor make a better choice—or perhaps take the place of human judgment in certain situations. Numerous AI methods can assist in extracting pertinent information from a vast quantity of clinical data. Artificial intelligence techniques are also trained to be highly accurate, capable of self-learning and error correction. The application of three AI methods to illness diagnosis is the subject of this survey.

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