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## *Editorial*

# Artificial Intelligence: The Gateway to Better Medical Diagnosis

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Artificial intelligence has demonstrated remarkable promise for diagnosing current and future diseases. The use of Artificial intelligence in disease diagnosis is anticipated to increase with advancements in this field. Artificial intelligence -driven diagnostic tools can assist clinicians in diagnosing patients more quickly and accurately by interpreting images such as computed tomography scans, magnetic resonance imaging, and X-rays. Artificial intelligence algorithms may analyze and combine patient information, symptoms, and medical background. In the future, Artificial intelligence may use the massive volumes of medical data to assist in disease prediction and prevention. Moreover, Artificial intelligence may also help diagnose complex diseases by integrating environmental, lifestyle, and genetic factors. Artificial intelligence can optimize patient care outcomes by enhancing and improving diagnostic processes. It cannot, however, replace trained medical personnel. Data security, continuing model validation, and ethical considerations must all be taken into account in future research and the application of Artificial intelligence for disease diagnosis.

Artificial intelligence (AI) and its subsets, machine learning and deep learning, are currently on the verge of becoming a key component in the healthcare system. AI, nanotechnology, 3D printing, robotics, and other advancements in digital healthcare technologies are changing healthcare right now. Digital healthcare can decrease human error, enhance clinical results, track data over time, and so forth. AI techniques, ranging from machine learning to deep learning, play a critical role in many areas, such as developing new clinical systems, managing patient data and records, and treating diverse diseases. The most effective methods for diagnosing various diseases are those utilizing artificial intelligence. AI offers previously unexplored opportunities to recover patient and clinical group outcomes and provide better medical services. AI helps clinicians identify illnesses by combining hundreds of biomarkers, complex algorithms, imaging results from millions of patients, combined published clinical research, and thousands of doctors' notes to increase diagnosis precision. Researchers have employed a range of AI-based methods to identify diseases that require early diagnosis, including those of the heart, skin, liver, and Alzheimer's disease (1,2).

The problem with this growth in healthcare data is that there aren't enough structured systems in place to integrate and reconcile it. However, several frameworks and algorithms make summarization easier and achieve the right amount of data for AI (3).

For a long time, the healthcare system has implemented new technologies before others. With the creation of new health check actions and the handling of patient records and accounts, artificial

intelligence is currently on the verge of becoming a key component in the healthcare system. One of the biggest challenges facing physician practices nowadays is coordinating and completing organizational duties. Healthcare organizations might automate this issue and free up doctors' time to do what they do best—that is, spend more time with patients (4,5).

It is often understood that AI involves the machine emulation of human functions such as learning, reasoning, and self-correction. The quantity of labor we must accomplish is increasing daily; hence, we need AI. Therefore, automating routine operations is a smart idea. It increases output while preserving the organization's workforce. All of the above makes AI necessary (6,7).

One important factor in society and human health is the emergence of new diseases. Thus, AI advancements make quick processing and analysis of such vast and complicated amounts of data possible. With a minimum of 98% accuracy, it provides the right choice for more than ten distinct diseases. For example, Physicians generate a comprehensive three-dimensional (3D) image of the affected area using technologies like magnetic resonance imaging and computed tomography scans. Subsequently, AI technology uses machine learning and deep learning models to analyze the system-generated image and identify the properties of the diseased area quickly (8,9).

Because of the development of learning algorithms, computing power, large datasets from wearable health monitors and medical records, and the availability of large datasets, AI in healthcare has the potential to improve several aspects of patient care, such as disease classification, illness detection, decision-making, providing the best possible treatment options, and, in the end, extending life expectancy. AI has been applied to improve medical diagnostics in terms of diagnosis. For instance, people with lung cancer may have tumors and nodules detected by AI technology, which is presently being used in China. This would enable doctors to diagnose patients earlier rather than waiting for tissue samples from the patient to be tested in a lab, enabling faster treatment (10,11).

Artificial intelligence-powered disease identification algorithms have proven to be useful for finding undiagnosed people with uncommon, underdiagnosed, or uncoded illnesses. As a result, AI models for disease detection have a great chance of helping people in need receive an earlier diagnosis and directing pharmaceutical companies to provide highly sophisticated, tailored diagnostics to aid in the timely diagnosis and treatment of these patients. Research on machine learning and deep learning models for the diagnosis of conditions like cancer, diabetes, heart disease, stroke, dementia, cerebrovascular accidents, hypertension, and skin and liver disease has been documented in the literature (4,6,7,12,13).

Even though AI-based methods have demonstrated their importance in detecting disease, researchers continue to encounter numerous obstacles that must be overcome. Limited data size and insufficient data to train the model were the most common problems in most trials. A smaller training set is suggested by a smaller sample size., which undermines the validity of the suggested methods. Although AI-based models have demonstrated their superiority in medical research, they are not used in clinical settings. These models must undergo clinical validation (14).

AI improves hospital administration, doctors, and patients' lives by saving time and money on tasks that would otherwise need human efforts. For instance, by analyzing enormous volumes of medical data, including symptom data, physician reports, and electronic health records, AI helps doctors make recommendations that can improve patient outcomes and potentially save their lives. Furthermore, by applying artificial intelligence-based methods to diagnose and treat patients, this data helps to improve and expedite decision-making (15,16).

In Conclusion, Precise disease diagnosis is essential for management planning, patient safety, and treatment effectiveness. AI is a broad and multifaceted field encompassing data, algorithms, deep learning, neural networks, analytics, and insights. It is continuously growing and changing to meet the demands of patients and the healthcare sector.

Despite significant progress over the past several years, there are still many challenges in the field of reliable clinical diagnostics that need to be overcome and improved upon continually to treat new and developing diseases properly. Even medical practitioners are aware of the obstacles that need to be solved before artificial intelligence and illness detection are combined. Currently, even medical professionals do not fully depend on AI-based methods since they are unsure of their capacity to predict illnesses and their accompanying symptoms. To improve the accuracy of predicting disease diagnosis techniques, a great deal of work must be put into training AI-based systems (17,18). Certainly, AI in medical diagnosis offers great hope, but we must also be attentive to the hype.

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