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INTRODUCTION AND APPLICATION OF ARTIFICIAL INTELLIGENCE TECHNOLOGY TO DIAGNOSE AND TREAT DISEASES

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Abstract:

The trend of the merger of large health companies gives more access to health information. Larger health data provides the basis for the implementation of artificial intelligence algorithms. As more information is collected, machine learning algorithms adapt and allow for more reliable answers and solutions. Many companies are exploring the possibility of entering Big Data into the healthcare industry. This article provides feedback and insights into the introduction and application of artificial intelligence technology to diagnose and treat diseases.

Keywords: artificial intelligence, diseases, treatment, diagnostics, health, technology, computer tomagraphy, diagnosis, opportunity.

INTRODUCTION. Many companies explore market opportunities through the areas of "data assessment, storage, management and analysis technologies", which are important parts of the healthcare industry. Artificial intelligence not only makes it possible to diagnose the patient in areas with low health, but also provides a good patient experience by providing resources for files to find the best treatment for the patient. The ability of artificial intelligence to adjust the course on time also allows the patient to change the treatment according to what suits them; an individual level of care that is virtually nonexistent in developing countries.

Over the past few years, artificial intelligence has shown promising development in the diagnosis and treatment of behavioral disorders such as autism. The days have passed when monitoring, testing and Evaluation have been required by doctors for months or even years to diagnose autism in a child. Artificial intelligence can now detect diagnoses within hours or even minutes, allowing for early intervention and more successful treatment. However, the promise of artificial intelligence in treating autism goes beyond simple diagnostics. With the development of AI-based smartphone apps, people with autism now have the opportunity to receive individual treatment and support.

METHODS. The path to a diagnosis of autism can be long and laborious, and delays can lead to serious consequences. Artificial intelligence can completely change the way autism is diagnosed, especially in situations where it is difficult to see the first symptoms of this disease. Artificial intelligence-based diagnostic tools may help confirm diagnosis or emphasize the need for further tests by analyzing large amounts of data and identifying patterns that may not be immediately obvious to human evaluators. Although AI-based treatment has shown promise in treating children with autism, it should be remembered that the field is still in its infancy. Robots and applications have many advantages, but they also have many disadvantages:

- The price is the biggest hurdle so far. High-end robots can be very expensive, making it difficult for institutions and families to include them in regular treatment sessions.
- The level of independence and mobility required for most applications can go beyond the capabilities of some autistic youth.
- While robots and applications can help teach specific skills such as social interaction and facial expression recognition, it is still unclear how successfully children apply such talents in real-world situations.
- It should also be borne in mind that many children with autism cannot use these tools, since they are not yet widely used in many contexts.

The benefits of AI-based treatment of autism, despite these difficulties, are enormous. In the coming years, due to the development of technology and ease of use, these tools can be used more widely. Thanks to these AI-based technologies, children have a rare opportunity to practice social interactions and develop the ability to interpret social

characters. While it is necessary to solve problems such as availability and cost, continuing research and development will pave the way for a better future.

RESULTS. We have the opportunity to change the lives of people with autism and use the power of artificial intelligence to help them overcome the difficulties that have left them behind for a long time. With a constant focus on our imagination, creativity and innovation, we can reveal the full potential of artificial intelligence and allow people with autism to succeed in a constantly changing world.

Artificial intelligence algorithms have shown promising results in accurate diagnosis and risk level determination of patients with coronary artery disease, suggesting potential as an early triage tool. Other algorithms have been used to predict patient mortality, drug effects, and post-treatment adverse events for Acute Coronary Syndrome. Wearable devices, smartphones, and internet-based technologies have shown patients ' ability to track heart data points, expand data size, and various settings that AI models can use, and enable early detection of heart disease that occurs outside the hospital. Another growing focus of research is the classification of heart sounds and the use of artificial intelligence in the diagnosis of pore diseases. The challenges of artificial intelligence in cardiovascular medicine are limited data available to train machine learning models.

Dermatology is a numerous pictorial specialty, and the development of deep learning is strongly linked to image processing. There are 3 main types of imaging in dermatology:

- contextual images,
- macro images,
- micro images.

DISCUSSION. Showed the detection of keratinocytic skin cancer from facial photos. Noyan et al demonstrated a convolutional neural network that achieved 94% accuracy in detecting skin cells from microscopic Tzanck smear images. Recent advances have suggested the use of artificial intelligence to describe and evaluate the results of facial-jaw surgery, or to assess the treatment of a palate crack in terms of facial attractiveness or age appearance. On average, human dermatologists have accurately identified 86.6 percent of skin cancers across images, compared to 95 percent on CNN hardware.

A particular challenge in oncology care that AI is being developed to address is the ability to accurately predict which treatment protocols are most appropriate for each patient based on individual genetic, molecular, and tumor-based characteristics. With its ability to translate images into mathematical sequences, AI has been tested in cancer diagnostics by reading imaging studies and pathology slides. In July 2020, an artificial intelligence algorithm developed by the University of Pittsburgh was reported to achieve the highest accuracy to date in detecting prostate cancer with 98% sensitivity and 97% specificity. Artificial intelligence has also been used to predict genetic mutations and predict disease outcomes.

AI is well-suited for use in low-complexity pathology analysis of large-scale screening samples, such as colorectal or breast cancer screening, reducing the burden on pathologists and enabling faster sample analysis turnaround. Several deep learning and artificial neural network models have shown accuracy similar to that of human pathologists, and a study of deep learning assistance in the diagnosis of metastatic breast cancer in lymph nodes showed accuracy in humans using deep learning software. It was superior to either humans alone or AI software alone.

In addition, the implementation of digital pathology will save the university center more than $12 million over five years, but the savings associated with AI have not yet been widely studied. The use of augmented and virtual reality may be a stepping stone for the wider implementation of AI-assisted pathology, as they can highlight areas of concern in a pathology specimen and present them to the pathologist in real-time for more efficient examination. AI is also capable of detecting histological findings beyond the human eye and has demonstrated the ability to use genotypic and phenotypic information to more accurately identify the tumor of origin for metastatic cancer.

Artificial intelligence is based on the principle that human intelligence can be defined in a way that a machine can easily mimic it and execute tasks, from the most simple to those that are even more complex. The goals of artificial intelligence include mimicking human cognitive activity. Researchers and developers in the field are making surprisingly rapid strides in mimicking activities such as learning, reasoning, and perception, to the extent that these can be concretely defined. Some believe that innovators may soon be able to develop systems that exceed the capacity of humans to learn or reason out any subject. But others remain skeptical because all cognitive activity is laced with value judgments that are subject to human experience.

CONCLUSION. Artificial intelligence is being studied in the field of radiology for the detection and diagnosis of diseases through computerized tomography (CT) and magnetic resonance (MR) tomography. This can be especially useful in conditions where the demand for human experience exceeds supply, or where the data is too complex for effective interpretation by human readers. Several deep learning models have shown the ability to be as accurate as health professionals in diagnosing diseases through medical imaging, but several studies reporting these findings have been externally validated. MR can provide non-interpretive benefits to radiologists such as improving image quality and automatically evaluating image quality.

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