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Artificial Intelligence in Healthcare

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ABSTRACT: Artificial intelligence (AI) in the healthcare sector is gaining attention from researchers and healthcare professionals. Several previous studies have examined this topic from a multidisciplinary perspective, including accounting, business and management, decision sciences, and health professions.

Artificial intelligence (AI) is a powerful and disruptive area of computer science with the potential to fundamentally change the practice of medicine and healthcare delivery.

Artificial intelligence is supposed to limit human cognitive functions. It brings an approach to health care that is supported by the increasing availability of health data and the rapid advancement of analytical techniques.

It is the most transformative technology of the 21st century. Healthcare has been identified as an early candidate for the AI technology revolution.

I. INTRODUCTION

Artificial intelligence technology differs from other traditional healthcare technologies in its ability to acquire information, process it and provide precisely defined output to end users. Artificial intelligence does this using machine learning algorithms. Artificial intelligence in healthcare is used to solve complex algorithms and software to estimate human cognition while analyzing complicated medical data. Artificial intelligence is the ability of computer algorithms to approximate conclusions without direct human intervention. Algorithms can recognize patterns in behavior and create their own logic.

II. HISTORY

1980s-1990s: Researchers start using AI to assist with diagnosis, including programs that can recognize patterns in medical images.

2000s-2010s: Machine learning algorithms become popular for processing large amounts of medical data, such as electronic health records (EHRs). AI is used for drug discovery and clinical trials, as well as predicting patient outcomes.

2010s-present: AI is increasingly used in medical imaging, such as detecting tumors or other abnormalities in X-rays and MRI scans. Natural language processing (NLP) is used to help doctors make sense of the unstructured data in EHRs. AI is also being used for personalized medicine, including recommending individualized treatments based on a patient's genetic profile.



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III. ARCHITECTURE OF ARTIFICIAL INTELLIGENCE IN HEALTHCARE

• Patient:

The most important role that AI will play for patients is that it provides all the relevant patient data in a timely manner and properly screens the affected part of the patients. AI advises the patient and guides the doctor in the correct administration therapy.

• Ambulance:

Sensor-based devices that are always in the patient's hands can be useful for EMS. Artificial intelligence helps EMS in decision-making and also in providing emergency treatment to serious patients such as stroke patients. AI-based algorithmic computers require several inputs such as temperature, blood pressure, etc. to monitor the condition of patients and provide quick assistance for a short period of time.

• Nurses:

Nurses can easily process vast amounts of patient data using smart AI-powered devices without manual data entry. Nurses are always updated from an AI-based system that receives patient data from their smart devices.

• Doctors:

Artificial intelligence makes everything easier and faster by monitoring and screening the patient as well as providing support for quick decision-making. Artificial intelligence can easily convert unstructured data into a structured form that provides accurate results and leads to perfect diagnosis.

• Radiologists:

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Radiologists benefit from artificial intelligence with regard to disease detection and monitoring. Artificial intelligence algorithms have shown extraordinary progress with image recognition tasks. AI primarily provides evaluation of radiological charts and automatically recognizes complicated patterns in the form of images.

• Clinical laboratories:

The use of artificial intelligence has increased tremendously in the day-to-day operations and procedures of clinical laboratories. Digital pathology enables the capture of pathological information such as whole slide images (WSI) and uses machine learning to recognize subtle patterns and provide detailed information to the pathologist.

IV. LITERARY SURVEY

• Will artificial intelligence solve the human resources crisis in healthcare: intelligence is changing nursing.

Due to the shortage of doctors, there is a huge crisis of health workers. worldwide age, aging and physician burnout, and greater demand for chronic health care In addition to an aging workforce, more than 17 million healthcare workers worldwide are missing. strong. due to the increasing number of patients and the lack of doctors, we can see sleep disorders and burnout of healthcare workers can see these problems and gaps in society can be solved very easily using technology and artificial intelligence.

• Artificial intelligence in heart control

Heart disease is considered one of the leading causes of death worldwide. so there is a constant demand to create a new way to treat heart and heart diseases and artificial intelligence is making a huge impact on the healthcare industry through disease diagnosis and treatment. due to an unhealthy lifestyle, blood enters the artery, which increases the heart risk even in children. AI records the patient's response to doctors' questions to determine problems and symptoms.

• How artificial intelligence is changing nursing

Artificial intelligence has introduced new algorithms and methods to nursing and medical practice. Because new algorithms are integrated into the system to help nurses care for the patient. It will be very important for nurses to gain sufficient knowledge in interpreting the results of multiple data and incorporating new information into nursing practice

V. ADVANTAGES

High-cost operations will be replaced by robot-driven operations that are not

 \succ High-cost surgeries will be replaced by robot-guided surgeries, which will not only be cost-effective but also beneficial for patient treatment.

- ➤ AI will help in managing hospital records which is a tedious job but with
- > AI will help in managing hospital records which is a tedious job but with the help of AI it will be fast and efficient.
- > Diagnosis of diseases will be more effective and earlier than the doctor, which will help in quick treatment.
- > With real-time data, clinical decision-making will become much easier with the help of artificial intelligence.
- > Specific patient data can be easily tracked with AI to help in treatment
- > Patient specific data can be easily tracked by AI to help in treatment.

VI. CONCLUSION

Artificial intelligence will be very useful for a country like India where medical facilities are not available to all and are a luxury for some. With the use of cost deduction, AI will be introduced in basic healthcare facilities and everyone will be able to afford the necessary facilities in their life. With the rise of communicable, non-communicable diseases and the spread of new viral infections, AI will be of greater benefit to humans as it will detect diseases much faster and cure patients' lives much more effectively. The increase in population creates a great burden on our medical staff, which makes the medical staff not sleep properly and mentally exhausted, due to which their efficiency in patient care and treatment decreases, with the use of AI intelligent robots, they will be able to help our medical staff provide much more efficient patient care and treatment, it will also reduce the burden on medical staff.

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