
DAB106 Introduction to Artificial Intelligence

HOW IS AI TRANSFORMING THE HEALTHCARE INDUSTRY

The healthcare industry is facing several challenges worldwide. Starting from patients to the administration system everyone is facing different challenges, from collecting and maintaining the data of patients to delivering correct course of medications to patients challenges are everywhere. Estimates of the number of Americans dying due to medical errors are as high as 98,000 [1]. Also, with the never stopping increase in population growth it is harder to facilitate medical care instantaneously to every individual using the orthodox way. Access to care, quality of care, cost of care, workforce shortages, data management, and chronic diseases these are the significant challenges faced by healthcare industry.

In this era of science and technology, Artificial Intelligence (AI) is revolutionizing most of the industries that can be named of. One of which is healthcare industry. AI is transforming healthcare in ways that are exponentially improving the outcomes and making healthcare more reliable with efficiency and accessibility. In particular, the ways that AI has brought about new methods of making process more accurate, particular, less time consuming and more effective. In this paper, we will dive into the deep ocean of applications that AI has been applied to in healthcare, and the way in which it is improving the industry.

- THE WAY AI IS TRANSFORMING HEALTH CARE AND ITS EXAMPLES.

1. Diagnosis Assistance / Predictive Analysis:

AI's most exciting application is identifying patterns and understanding signs of possible medical threat. Diagnosis assistance can be used in analyzing previous health history of the patient with new data such as X-rays, MRI scans, CT scans, and recognize that whether the patient has any signs of disease. AI algorithms can be trained to identify heart disease using inputs such as, blood pressure, diabetes history, heart rate, blood sugar, etcetera, and provide the doctor with accurate information that can help them in making better diagnosis [2]. Using these methods, we can fight against the biggest threat to human health "The Cardiovascular Diseases" [3]. Also, algorithms can be trained using photos as well and it can detect things that naked eyes might miss. There are many diagnosis assistants available today which provides different assistance [4].

2. Chatbots:

AI chatbots are basically virtual receptionist who can provide basic medical information to the public from anywhere around the globe. Using chatbots, it is easier to even scheduling an appointment if the physician is busy. For example, one patient is severely injured and need to be treated instantly and other patient just require first aid than the chatbot might help and assist a non practitioner with first aid without the need of reaching to the doctor. And if needed it can directly schedule appointment or direct the patient to the doctor. It makes accessibility easier and smoother [5].

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3. Electronic Health Records (EHRs):

An EHRs is a secure lifetime record of your health history. It gives your health care team, including family doctor, nurses, emergency room clinicians and specialists, real-time access to your relevant medical information, so they can provide the best care for you [6]. AI algorithms analyze large amount of patient data to find risk factors in patients health, track their process, and predict the outcome. eHealth Ontario has built the provincial system for healthcare industry to access EHRs of patients so they can quickly look up their data [6].

4. Personalized Medicine:

Another realistic application of AI in healthcare. Algorithms are being used to select personalized medicine as well as treatment courses for every individual. Considering the genetics, lifestyle, medical history, and many more this technology ensures that the process is tailored for patient's individual needs. One of the examples of personalized medicine is CURATE.AI [7].

5. Drug Development:

Drug development is one of the most important parts of medicine industry. AI is used in targeting the ingredients of drug as well as help the researcher in optimizing the drug discovery process. Algorithms can identify compounds that are likely to bind to target and have therapeutic effects. Computer simulations using AI can also predict how the drug might interact with the targeted issue. Using past data AI can even run trials and find who are best suited for the drug and what might be the adverse side effects of the drug [8].

6. Clinical Decision Support:

Humans have many factors that can impact our decision-making process and using AI algorithms it can be improved without compromising the useful factors of human mind. Machine Learning can detect patterns from vast amount of data, from which humans' eye can not. An Intelligent system will remember all the past data of every patient and also can take other aspects such as genetics, lifestyle, environment, and many more into consideration. And would support a decision including all these details to make decision robust yet precise [9].

- CONCLUSION

Artificial Intelligence is a field of infinite possibilities. In near future, there will be more use cases of AI in healthcare industry, as the AI itself is evolving. This will in turn favour us humans as one. Because it is improving its outcome, changing the ways of receiving and delivering it, personalizing processes, reducing repetitive human tasks, analyzing large amount of data within minutes if not seconds. AI has the potential to greatly improve the quality of care that patients receive and help to make healthcare more affordable and accessible for everyone.

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References:

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