

AI transforming the healthcare sector at the speed of thought

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Artificial intelligence, although theoretically existing since the 1950s, has really emerged as a practical part of operations across industries in the last few years. Healthcare, however, is one industry where the impact of AI has been prominent. From clinical research to hospital care to medical devices, AI-based applications are revolutionizing each and every sector of the healthcare industry. Of the numerous advantages AI has to offer, reduced costs and better patient engagement outcomes are the most obvious ones. However, we have just scraped the surface when it comes to AI's potential to completely transform the healthcare industry as we know it.

According to a report by Accenture, key clinical health AI applications can potentially create \$150 billion in annual savings for the US healthcare economy by 2026. Their analysis also predicts that the health AI market in the US can reach \$6.6 billion by 2021, with a compound annual growth rate of 40%. While the report solely focuses on the US market, the adoption of AI in health care has been quick in other countries too. AI solutions are real (not just research projects) and are being deployed after approval by US FDA. Implementation of AI-driven applications can aid in data analysis, preliminary diagnosis, remote monitoring, clinical trial, medical practice among other facilities. Here follow a few ways in which AI is impacting the healthcare industry

Enhanced patient safety

Despite many advancements made in the field of healthcare, patient safety remains one of the major concerns owing to factors such as diagnostic errors, faulty equipment, surgical complications, expired medication, lack of human oversight and negligence. To start with the diagnosis of illnesses, AI devices can prevent adversities by effectively bringing down cases of misdiagnosis. Prior to the arrival of AI, diagnosis of a simple disease could take about weeks, causing delays in treatment. Today, diagnosis can be supported through deep learning algorithms that recognize specific characteristics or patterns. In a recent study conducted by Stanford University researchers, an AI algorithm was able to successfully detect skin cancer against dermatologists. There are some devices that can assess the presence or absence of disease, and if present, specify the disease type, severity, stage, and can even recommend the appropriate intervention. In December 2018, Google unveiled an AI model that can detect diabetic retinopathy with a level of accuracy on par with human experts.

When it comes to the treatment process, in addition to the patient's clinical history, AI-powered Natural Language Processing (NLP) enables medical professionals to review thousands of comprehensive research papers, journals and documents to recommend the most appropriate form of treatment for that particular patient. Image analysis is another area where AI can bring about a drastic change. For instance, a research team from MIT developed a machine-learning algorithm that can analyze 3D scans up to 1,000 times faster than before, making it nothing short of a breakthrough moment in medical history.

Improved accessibility and reduced healthcare costs

AI-based applications have the potential to make healthcare accessible to people irrespective of their geographical location. AI image analysis, for example, can provide medical support to patients residing in remote areas where the healthcare facilities are limited. Moreover, the field of telemedicine can be largely benefited with the implementation of AI. As per Kaveh Safavi, head of Accenture's global health practice, AI applications can bolster accessibility without compromising the other two interlocking factors – effectiveness and affordability. The ever-increasing cost of healthcare has always been a major concern for patients and their families alike. Adoption of AI can bring down the healthcare costs to a great extent while improving the treatment quality simultaneously.

AI in Indian healthcare

While India has been among the early adopters of AI, the country is yet to catch up when it comes to the healthcare industry. Of many reasons, non-availability of data represents the biggest challenge for AI developers building applications that specifically cater to the Indian healthcare sector. As a result, these developers often have to rely on data acquired from the US or European market, which may not be the accurate reflection of the indigenous patient population. This is an area where the government can play a crucial role in driving local innovations. First, there is an urgent need for the implementation of Electronic Health Record (EHR) Standards for India and the deployment of an NPL platform to ensure the collection and sharing of data are done in a regulated, transparent manner. The government should also join hands with private healthcare providers across the country to identify key focus areas and start building AI platforms and products. Further, the government along with healthcare stakeholders can launch outcome-based pilot programs to test the deployment of existing AI-driven solutions in the Indian market to address unmet clinical demand.



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