

Growing Popularity among Indian's Healthcare Entrepreneurs is Artificial Intelligence (AI)

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ABSTRACT:

Artificial intelligence (AI) is gaining traction in a variety of industries, including healthcare. AI balm in the prediction of disease patients for medical procedures. The use of AI in healthcare is vast, and it is recycled by not just doctors, nonetheless patients, the pharmaceutical industry, health services, insurance companies, and medical institutes.

Artificial intelligence (AI) has application in dermatology, echocardiography, neurology screening, retail care, diagnostics surgery, and angiography. It offers easy access to both doctors and patients, as well as input to the medical community for study. AI aids in patient Surveillance, screening, clinical and medical studies.

Keywords: Machine Learning (ML), Artificial Intelligence (AI), Robotics, Radiology, Healthcare Industry.

INTRODUCTION:

India only produces roughly 55,000 doctors each year, which is insufficient to meet minimal criteria. By 2030, India will require 2.3 million doctors to achieve the WHO-recommended minimum doctor-to-patient ratio of 1:1000. Initial Examinations by at least a dozen healthcare entrepreneurs may hold the key to propelling Indian healthcare forward and alleviating the pressure on the country's healthcare system¹. Artificial intelligence (AI) underpins a variety of concepts, including computing, software development, and data transfer¹. Machine learning, deep learning, natural language production, speech recognition, robots, and biometric identification are examples of AI technology. AI is used in a variety of fields, including healthcare, assembly and manufacturing, business, and the automobile industries².

Artificial intelligence (AI) is defined as the intelligence of machines as opposed to the intelligence of humans or other living species³. Artificial intelligence (AI) and related technologies are becoming more common in business and society, and are starting to be applied to healthcare⁴. Artificial intelligence (AI) aims to mimic human cognitive functions. It is ushering in a paradigm shift in healthcare, fueled by the growing availability of healthcare data and the rapid advancement of analytics techniques⁵. It has the potential to boost care delivery productivity and efficiency, allowing healthcare systems to provide more and better care to more people. AI can help healthcare providers have a better experience by allowing them to spend more time on direct patient care and lowering burnout⁶. Patients, doctors, and hospital managers' life are made easier by artificial intelligence, which performs activities normally performed by people in a fraction of the time and at a fraction of the expense⁷.

Review of Literature

The healthcare industry accounts for a significant portion of the

US GDP and is ripe for disruption. Artificial intelligence/machine learning will have an impact on every element of healthcare, according to the industry. Healthcare systems around the world, according to Morley et al⁸, are grappling with rising costs and declining results. Policymakers, lawmakers, clinical entrepreneurs, and computer and data scientists are increasingly arguing that 'Artificial Intelligence' (AI) – particularly Machine Learning – will be a crucial part of the solution (ML).

Artificial intelligence (AI), according to Chung¹⁰, has become a major driver of growth and investment in the healthcare business. Industry heavyweights like IBM, for example, are leveraging the potential of AI to market diagnostic tools like Watson for Oncology, which provides individualized treatment guidance.

Artificial Intelligence (AI) has gained substantial ground in everyday life in the information technology era, according to Rayan¹¹, and it has now made its way into healthcare. AI research in healthcare is rapidly progressing. However, this may only be the beginning of determining how it may affect patient care. Artificial intelligence (AI) aims to replicate human cognitive abilities. It is undergoing a transition in healthcare, which is being aided by the increasing availability of clinical data as well as the rapid growth of analytics tools. The 'black-box' character of AI algorithms, according to Kiseleva¹², causes obstacles for their implementation in all domains where decision-making must be transparent and accountable. The healthcare industry is one of these. While transparency and accountability in healthcare are relatively unexplored, this paper explores these ideas and classifies their forms in healthcare in general, as well as in relation to the usage of AI.

Market Size for Artificial Intelligence in Healthcare: AI is one of the fastest-growing sectors on the planet. The global artificial intelligence in healthcare market was valued at USD 2.5 billion in 2018, and it is predicted to increase at a CAGR of 41.5 percent between 2019 and 2025¹³.

Artificial Intelligence (AI) in the Indian Healthcare Market: Artificial intelligence applications in healthcare are expected to be valued INR 431.97 billion by 2021, according to estimates. Based on the expansion of AI applications in healthcare, India's doctor-patient ratio is predicted to increase to Rs. 6.9:1,000 by 2023, up from Rs. 4.8:1000 in 2017. The capacity of AI applications to increase doctors' efficiency will aid in addressing issues such as a disparity in doctor-patient ratios, providing high-quality healthcare to remote communities, and teaching doctors and nurses to perform difficult medical procedures¹⁴.

Artificial intelligence (AI) adoption is profoundly altering the Indian healthcare business. Medical treatment processes in the country are expected to be revolutionised by AI-enabled healthcare services such as automated analysis of medical tests,

predictive healthcare diagnosis, automation of healthcare diagnosis with the help of monitoring equipment, and wearable sensor-based medical devices¹⁵.

Overview of the Artificial Intelligence (AI) in Healthcare in India:

A global health emergency like the corona virus puts the healthcare business in the forefront, with all stakeholders fighting from the front lines. In many nations, including India, the epidemic has been dubbed a structural shift in digital healthcare. Many people believe that now is the moment for India to reboot its healthcare system and encourage health IT entrepreneurs in filling the gaps in the old system. Many healthcare companies in India require automation for a variety of activities, and they are utilising AI to assist them¹⁶.

The Indian startup ecosystem has exploded in popularity in recent years. The country is on the list of countries that have received millions of dollars in funding for tech firms.

The previous 12 months These firms are gaining traction as a result of their own creativity and excellent customer service. On the other hand, India's healthcare market is predicted to increase at a CAGR of 23% to \$280 billion by 2020. And, as part of the 'Digital India' strategy, the government has stepped up efforts to

close the gap in health IT, an area where Indian firms are already gaining traction¹⁷.

According to DIPP data, the country's hospital and diagnostic facilities generated \$6.34 billion in FDI between April 2000 and June 2019, and reports imply that the Indian healthcare business is one of the country's fastest-growing sectors. India's healthcare market is predicted to reach \$372 billion by 2022, according to the India Brand Equity Foundation (IBEF)¹⁸. Despite the fact that India has a long way to go in terms of employing technology to provide health-related services, health-tech is a game-changer. By 2030, it is predicted to generate 40 million employment¹⁹.

Recently, AI techniques have made huge waves in the healthcare industry, sparking a heated debate on whether AI doctors would someday replace human doctors. Human physicians, we believe, will not be replaced by computers in the near future, but AI can certainly help physicians make better clinical judgments or even replace human judgement in certain areas of healthcare²⁰.

In India, the healthcare sector is rapidly expanding in terms of revenue and market share. Many new health tech businesses have sprung up in India as a result of this burgeoning sector. They serve a variety of healthcare segments, arrange appointments, offer medicine over the internet, and operate as a commercialized venture unit²¹.

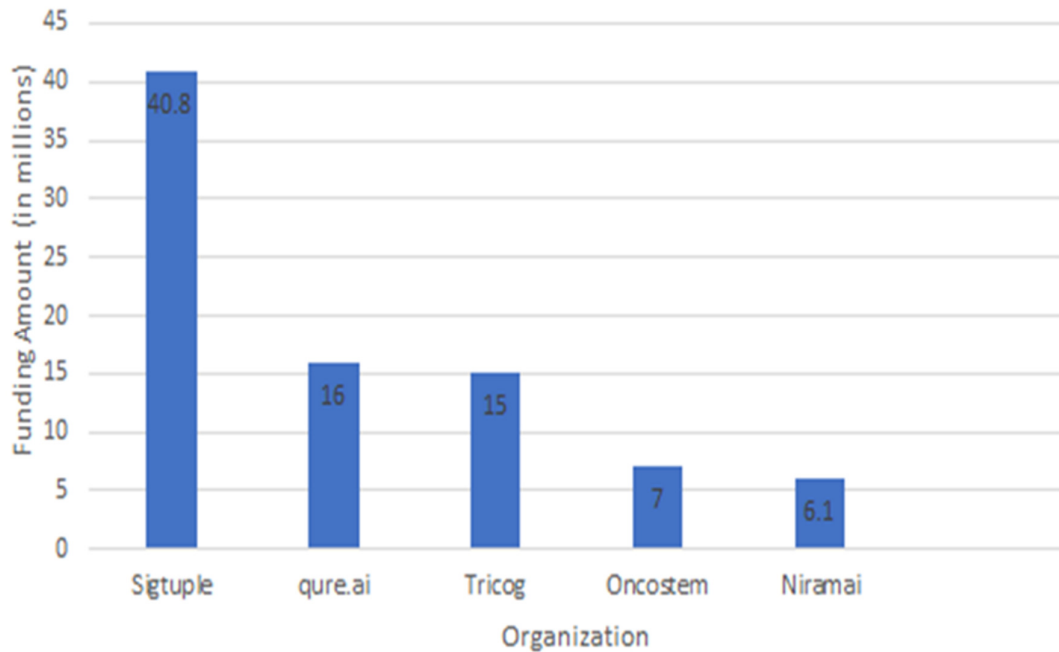


Chart 1: Top Five Artificial Intelligence (AI) organizations in healthcare in India

The Role of Artificial Intelligence Technology in Healthcare: Artificial intelligence (AI) is transforming the healthcare system at a breakneck pace. AI, robotics, and big data have altered the globe and brought up unprecedented opportunities and potentials in healthcare²². To improve cures and practises, a knowledge-intensive industry like healthcare relies heavily on data and analytics. The amount of medical data collected, including clinical, genetic, behavioural, and environmental data, has increased dramatically in recent years. Healthcare practitioners, biomedical researchers, and patients generate enormous volumes of data every day from a variety of devices²³.

AI technology is bringing about significant developments in the healthcare profession that have never been witnessed before. Although medical AI technology will not be able to completely replace the work done today, it will have a significant impact on electronic health records (EHRs), diagnosis, treatment protocol development, patient monitoring and care, personalized medicine, robotic surgery, and health system management²⁴.

Machine Learning and Radiology: Osaka University researchers have devised a deep-learning algorithm that can accurately diagnose a variety of neurological illnesses, including epilepsy. Patients' magneto encephalography findings are scanned, and their images are compared to tens of thousands of comparable scans from healthy patients. It then looks for possible lesions and other aberrant brain regions. Because epilepsy frequently spreads across the brain, detecting abnormal scans as soon as feasible is critical to improving patients' treatment options and outcomes²⁵.

Robotics: Robotic limbs for amputees, micro-robots that cure damage from the inside, and robo-assistants in surgeries are just a few of the applications in the healthcare sector that are now in use. Telepresence robots that evaluate patients to free up time for medical professionals may be available shortly²⁶. My capacity for perform tasks that humans perform more quickly, cheaply, and efficiently is growing. Healthcare has a lot of potential for both AI and robotics.. AI and robotics are increasingly a component of our healthcare ecosystem, just as they are in our daily lives²⁷.

Drug Discovery: Artificial intelligence (AI) technologies are being developed to uncover new possible therapeutics from enormous databases of data on existing drugs that might be tailored to target crucial dangers like the Ebola virus. This could boost drug development efficiency and success rates, speeding up the process of bringing new treatments to market in response to fatal disease threats²⁸.

Numerous businesses are creating Software for a variety of healthcare applications, which is a crucial reason in the software segment's expansion. In the later part of the projection period, the adoption of AI-driven healthcare informatics solutions and healthcare operational support by hospitals and other healthcare service providers is likely to raise demand for services²⁹. As a result, establishing trustworthy AI will become an increasingly important requirement for future artificial intelligence/machine learning applications in the healthcare business, and trust should be embedded into the system from the start instead of as a concern.

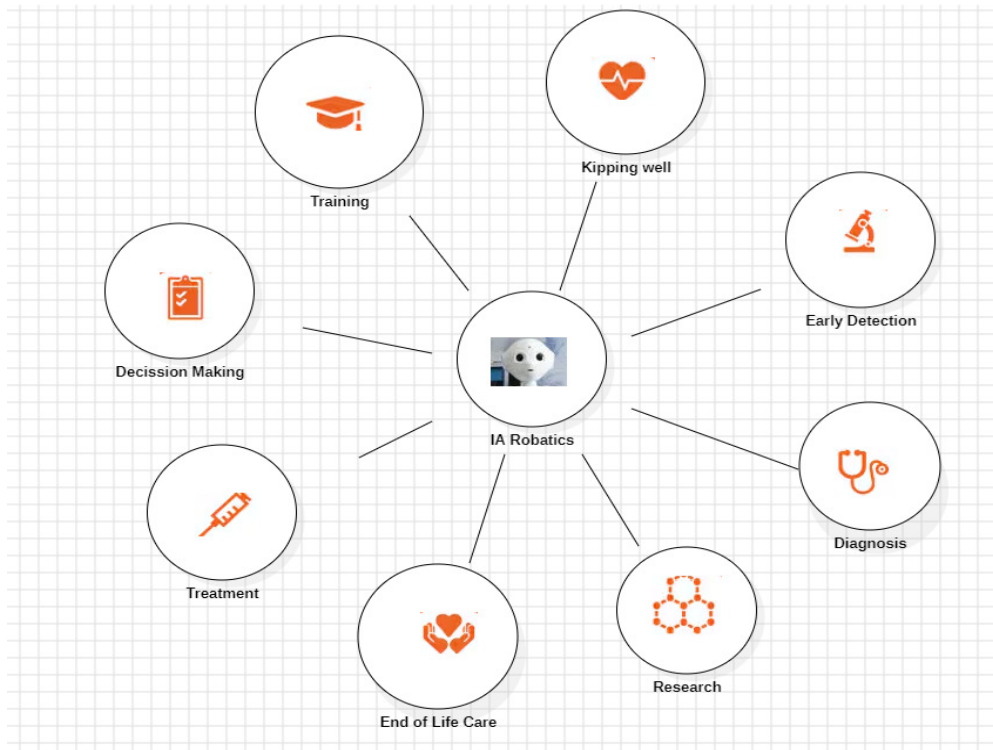


Figure 1: Robotics in the Healthcare

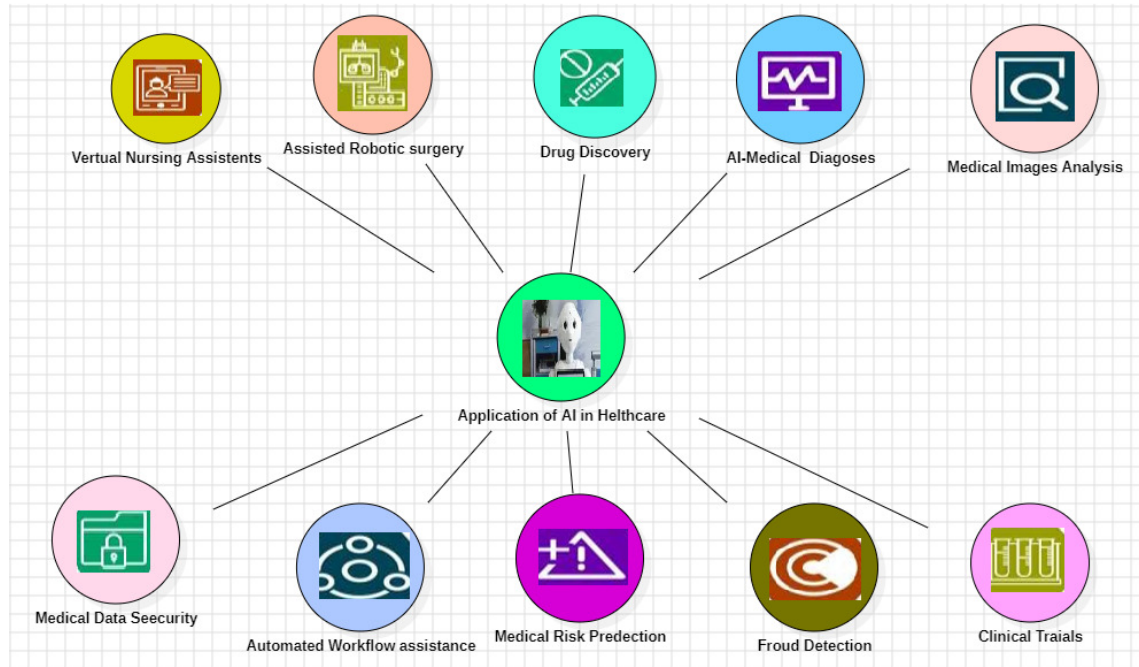


Figure 2: Application of Artificial Intelligence (AI) in Healthcare

AI is advancing in a variety of fields. In the field of medicine, AI has the potential to have a significant and accurate impact on clinicians and patients. AI could deliver substantially faster and more exact diagnoses for a larger segment of the population due to its ability to combine and analyze a big amount of various data. People who do not have access to highly functional health care could benefit from AI's competence. Because of more advanced and reliable diagnosis, healthcare expenses are likely to decrease. Because artificial intelligence has been thoroughly confirmed, doctors will need to use their experience and knowledge to certify that artificial intelligence is enabling for exact diagnosis and medical procedures³⁰.

Conclusion

AI technology aids in the resolution of health issues in India, but it is limited by the lack of readily available medical information and the inability of human qualities to handle specific aspects. The goal of an artificial intelligence programme is to replace human meddling, however it is unable to justify and convey knowledge. A small number of treatments performed by medical institutions' clients resulted in deception or fraudulent activity. Artificial intelligence (AI) is being used to detect digital threats, cyber attacks, and defend medical care computer systems.

Human physicians will not be supplanted by robots to make better clinical decisions, according to AI systems. The AI application is designed to help patients with training, medical research, diagnosis, medical treatments, and decision-making in wellness care. AI systems will evolve to the point where they will be able to do a greater range of tasks without the need for human intervention. While inspiring and driving innovation in the field, AI is created and applied in a transparent and public-interest-friendly manner.

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