

Editorial

Artificial Intelligence in Healthcare Industry

The immense development of biomedical science has opened several new doors for the improvement of healthcare transformation. The modern biomedical science includes genomics, digital medicine and most importantly one subtype of artificial intelligence (AI) named machine learning (ML). Healthcare system is looking for a new type of labor force and new standard practice match up with new biomedical science.

In AI machine mimics human cognition function mostly learning and problem solving pattern.² These machines are based on algorithms or rules made with the collaboration of science and engineering. Artificial intelligence supports computer to emulate adaptation, reasoning, sensory understanding and deep learning.³ The functional ability of AI is mainly depended on availability of health data and quickly performed analytic techniques.⁴

AI uses different modules like machine learning (ML), deep learning and natural language processing (NLP). Large language model (LLM) is a type of AI algorithm which is used in understanding, summarizing, generating and predicting new text-based content of large amount of data.⁵ The concept of AI was first described by Christopher Strachey in 1951 though it became a research topic in 1956 when John McCarthy presented the term 'Artificial Intelligence' in the Dartmouth conference. In 1960 and 1970 AI has flourished a bit but was limited to computing power and data. In 1980 and 1990s AI research was extended to machine learning and neural works and finally drew the attraction of world when IBM's Deep Blue defeated world champion chess player Garry Kasparov.⁶

In order to minimize the treatment cost and to provide better health outcome AI can be used in following aspects of healthcare successfully:⁷

- Patient engagement and compliance
- Medical research and drug discovery
- Medical imaging and diagnostics
- Virtual patient care

- Rehabilitation,
- Administrative purpose

AI in Medical Education

AI is gradually getting popular and more interactive among the learners and instructors of medical education.⁸ One of the key areas of interest is virtual simulation, which allowing students to practice difficult and complex on AI based simulated patients without risking any real patient. This AI based hands-on simulated practice can be customized, could be done repeatedly at the convenience of the student. Moreover, AI can help students in diagnosis and treatment of patients with more precision. AI algorithms dealing with vast database can help in personalized medicine as well as personalized teaching. By analyzing each student's learning experience, assignments and examination result individual tutoring system can be built. Assessment is an important part of medical education. By using AI algorithm question preparing will be more accurate in following taxonomy with less biasness to assess the knowledge and skill of the students.

AI for clinicians

Along with medical education AI has a lots of contribution in the clinical practice also. Proper using of AI algorithm database not only can fasten the clinical service but also can provide more precision. The following aspects are so far being considered for contributed by AI in clinical set for the physicians.⁹

- AI assisted personalized treatment
- Accurate clinical decision support
- Dose optimization and therapeutic drug monitoring
- Predictive analysis of risk assessment
- Upgrading drug information and consultation
- Personalized mental health support
- Individualized patient education and drug compliance.

Artificial intelligence in healthcare system is a time demanding issue. There are few ethical limitations for AI as well as it has cost constraint too. Newly trained health worker recruitment is also challenging. AI in low and middle economic category countries may be still in struggling phase but considering the possible benefits in future lots of countries will incorporate AI in their healthcare system.

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