

THE INCREASING USE OF AI IN HEALTHCARE: ADVANTAGES AND DRAWBACKS

Amrutha. KP*¹

*¹Assistant Professor, International School Of Management Excellence, Bangalore, India.

ABSTRACT

The healthcare industry is rapidly incorporating Artificial Intelligence (AI) into its operations, which is changing patient care, diagnosis, and treatment. This article defines, applies, highlights, and discusses artificial intelligence (AI) and its significant effects on healthcare. Artificial Intelligence (AI) comprises many technologies like as computer vision, natural language processing, and machine learning, which allow for the analysis of large amounts of medical data. It expedites drug discovery, improves the interpretation of medical imaging, and helps predict patient outcomes. AI-driven healthcare transforms early disease diagnosis and expedites administrative procedures while providing increased precision, productivity, and personalised care. But concerns about algorithmic prejudice, data security, ethical quandaries, and legal difficulties need to be addressed. AI has a lot of promise for the healthcare industry, including improvements in personalised medicine, predictive analytics, early disease diagnosis, and medication discovery.

Keywords: Artificial Intelligence, Healthcare, Medicine, Applications, Analytics, Predict.

I. INTRODUCTION

Artificial intelligence (AI) is quickly changing many industries, and healthcare is no exception. The coming together of big data, AI algorithms, and state-of-the-art technologies has created new avenues for patient care, diagnosis, and treatment. This article explores the advantages, possible drawbacks, and future prospects of artificial intelligence (AI), a revolutionary technical innovation, as it becomes increasingly prevalent in healthcare.

Section 1: Comprehending AI in Medical Applications

1.1. AI in Healthcare: A Definition

When it comes to healthcare, artificial intelligence includes a variety of technologies such as computer vision, natural language processing, and machine learning. With the use of artificial intelligence (AI) techniques, machines can now handle and analyse enormous volumes of medical data by imitating human intelligence.

1.2. Important Uses of AI in Healthcare

1.2.1. Imaging in Medicine

AI-powered algorithms improve the interpretation of MRIs, CT scans, and X-rays, enabling more precise and effective diagnosis.

1.2.2: Analytics that Predict

AI forecasts patient outcomes, assisting medical professionals in making well-informed choices regarding interventions and treatments.

1.2.3. Research on Drugs

AI accelerates the discovery of new drugs by locating and evaluating promising candidates.

1.3. AI's Benefits for Healthcare

1.3.1. Enhanced Precision

When it comes to medical diagnosis and treatment planning, AI systems eliminate human error.

1.3.2. Increased Productivity

Healthcare personnel may now do tasks that took hours to complete in minutes, resulting in increased productivity.

1.3.3. Customised Medical Care

AI customises therapy regimens for each patient, taking into account their lifestyle, medical history, and genetics.

II. AI'S ADVANTAGES FOR HEALTHCARE

2.1. Early Disease Detection Artificial intelligence (AI) may find trends and abnormalities in patient data, allowing for the early detection of ailments including diabetes, cancer, and heart issues.

2.2. Administrative Tasks Streamlined

Staff workloads can be decreased by using AI-powered chatbots and virtual assistants to manage administrative, billing, and appointment scheduling duties.

2.3. Telemedicine and Remote Monitoring AI make it possible for people to get medical advice from doctors and keep an eye on their health from the comfort of their own homes.

2.4. Drug Development and Research Artificial intelligence shorten the time and expense required to bring new drugs to market by speeding up the drug discovery process.

III. AI IN HEALTHCARE: ISSUES AND DIFFICULTIES

3.1. Security and Privacy of Data

Because AI is being used extensively, it is necessary to gather and store sensitive patient data, posing issues with cybersecurity and privacy.

3.2. Algorithm Bias: Healthcare delivery inequities may arise from AI algorithms' inheriting biases from the data they are trained on.

3.3. Moral Conundrums

AI in life-and-death situations, like autonomous surgery, raises ethical issues that need to be carefully thought through.

3.4. Obstacles Regulatory

Healthcare laws frequently find it difficult to stay up with technology developments, which makes implementing AI difficult.

IV. AI'S PROSPECTS IN HEALTHCARE

1. Artificial intelligence (AI): has a very bright future in the healthcare sector, with a plethora of prospects for continued innovation and change. AI has the potential to completely transform healthcare, making it more patient-centred, efficient, and economical. These are some salient features of the potential application of AI in healthcare. **Early Disease Diagnosis and Identification:** The capacity of AI algorithms to evaluate medical pictures, including X-rays, MRIs, and CT scans, will keep improving. They will be able to identify even minute irregularities, which will enhance early illness identification and result in better treatment outcomes.

2. Predictive Analytics: Healthcare providers will be able to forecast patient outcomes with ever-increasing precision thanks to AI's ability to process large datasets. This will make it possible to create more individualised treatment regimens, which will enhance patient care and lower the risk of unfavourable outcomes.

3. Drug Development and Discovery: AI will speed up the drug discovery process. Machine learning algorithms have the ability to evaluate chemical structures and forecast the effectiveness of possible therapeutic options, which speeds up and lowers the cost of developing new pharmaceuticals.

4. Personalised Medicine: AI will be essential in creating treatment regimens that are specific to each patient. AI will make sure that therapies are more successful and have fewer negative effects by taking into account a patient's genetic information, medical history, and lifestyle

5. Remote Patient Monitoring: Real-time tracking of patients' vital signs and health data will be possible because of the rise of wearable technology and the Internet of Things in the healthcare industry. Artificial intelligence (AI) will examine this data to give medical practitioners insightful information and warn them of possible problems.

6. Telemedicine and Virtual Consultations: This field of medicine will keep expanding, providing consultations and services for healthcare from a distance. AI-driven chatbots and virtual assistants will make scheduling, medication refills, and initial evaluations easier for patients and medical professionals.

7. Surgery by Robots: Surgical precision and efficiency will increase with the incorporation of AI into robotic surgical systems. Even when operating from a distance, surgeons will be able to execute intricate procedures with increased accuracy.

8. AI will assist healthcare organisations: In managing and analysing the ever-growing amounts of data in the field. It will provide insightful information that can guide research, resource allocation, and clinical judgements.

9. Behavioural Health and Mental Health Support: Artificial intelligence (AI)-powered chatbots and virtual mental health assistants will provide people with mental health concerns a way to get support and direction.

10. Patient Engagement and Education: AI-driven solutions will include individuals in their healthcare journeys by providing nutrition suggestions, medication reminders, and individualised health education resources.

11. Healthcare Administration: AI will streamline administrative duties, such as insurance processing, billing, and appointment scheduling, thereby lowering the administrative burden on healthcare personnel.

12. Regulatory Compliance: AI systems can help healthcare organisations ensure that they fulfil requirements for patient privacy and data security while also helping them deal with complex healthcare regulations.

13. Ethical and Regulatory Frameworks: It is imperative that strong ethical and regulatory frameworks be created before implementing AI in healthcare. To guarantee the ethical and responsible application of AI technologies, policymakers and medical professionals will need to create rules.

V. CONCLUSION

Healthcare is undergoing a revolution thanks to artificial intelligence, which has many positive effects but also certain problems that need to be resolved. As we advance, cooperation will be necessary for the ethical integration of AI into healthcare.

VI. REFERENCES

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