**REPORT ON AI IN MEDICAL FIELD**

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ABSTRACT

This report is based on our study on the topic “AI IN MEDICAL FIELD” with reference to the technical paper: “ARTIFICIAL INTELLIGENCE IN MEDICINE”. Artificial intelligence is revolutionizing-and strengthening-modern healthcare through technologies that can predict, grasp, learn, and act, whether it's employed to identify new relationships between genetic codes or to control surgery-assisting robots. It can detect minor patterns that humans would completely overlook.  This study explores and discusses the various modern applications of AI in the health sector. Particularly, the study focuses on three most emerging areas of AI-powered healthcare: AI-led drug discovery, clinical trials, and patient care.

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INTRODUCTION

Artificial intelligence in medicine is the use of machine learning models to search medical data and uncover insights to help improve health outcomes and patient experiences. Artificially intelligent systems in healthcare have the following typical pattern. Such a system starts with a large amount of data, on these data machine-learning algorithms are employed to gain information, this information is then

used to generate a useful output to solve a well-defined problem in the medical system. Great advances have been made in using artificially intelligent systems in case of patient diagnosis. Artificially intelligent systems are also being applied in the healthcare sector to enhance patient experience, patient care, and provide support to physicians using AI assistants.

APPLICATIONS

* [Health care analytics](https://www.coursera.org/articles/healthcare-analytics): ML algorithms are trained using historical data to produce insights, improve decision-making, and optimize health outcomes.
* Precision medicine: AI is used to produce personalized treatment plans for patients that consider such factors as their medical history, environmental factors, lifestyles, and genetic makeup.
* Predict diseases and illness: Using predictive models, health care professionals can determine the likelihood that someone might develop a particular condition or contract a disease.
* Interpret tests and diagnose diseases: ML models can be trained using common medical scans, like MRIs or X-rays, to interpret and diagnose such conditions as cancerous lesion

BENEFITS

AI provides several benefits to the field of health care, the professionals working within it, and the patients that interact with it every day. While health care professionals can expect lower operational costs due to improved decision-making and more efficient automated services, providers can leverage the technology to design bespoke treatment plans and diagnose conditions more quickly and accurately than they could alone.

Patients can expect potentially improved

health outcomes and lower costs resulting from more efficient health services. Both AI and [health care are growing fields](https://www.coursera.org/articles/is-health-care-a-good-career-path?trk_ref=relatedArticlesCard) that are projected to have a big impact in the coming decade. AI-oriented positions are becoming increasingly common within the field of health care.

1. [Health informatics](https://www.coursera.org/articles/what-is-health-informatics) specialist

2. [Machine learning engineer](https://www.coursera.org/articles/what-is-machine-learning-engineer)

3. [Data scientist](https://www.coursera.org/articles/what-is-a-data-scientist)

4. [AI engineer](https://www.coursera.org/articles/ai-engineer)

DIAGNOSTICS

Detecting any irresistible ailment is nearly an afterward movement and forestalling its spread requires ongoing data and examination. Hence, acting rapidly with accurate data tosses a significant effect on the lives of individuals around the globe socially and financially. The best thing about applying AI in health care is to improve from gathering and processing valuable data to programming surgeon robots. This

section expounds on the various techniques and applications of artificial intelligence, disease symptoms, diagnostics issues, and a framework for disease detection modelling using learning models and AI in healthcare applications.

* Heart assault signs incorporate hurt, nervousness, crushing, or feeling of breadth in the focal point of the chest that endures more than a

couple of moments; agony or anxiety in different territories of the chest area; succinctness of breath; cold perspiration; heaving; or unsteadiness.

* Stroke signs incorporate facial listing, arm shortcoming, the intricacy with discourse, quickly creating happiness or equalization, unexpected absence of sensation or weak point, loss of vision, puzzlement, or agonizing torment.
* Reproductive wellbeing manages the signs that develop the issues such as blood misfortune or spotting between periods; tingling, copying, disturbance at genital region; agony or disquiet during intercourse; genuine or sore feminine dying; extreme pelvic/stomach torment; strange vaginal release; the sentiment of totality in the lower mid-region; and customary pee or urinary weight.
* Breast issue side effects include areola release, abnormal bosom delicacy or torment, bosom or areola skin changes, knot or thickening in or close to bosom or in the underarm zone.

LIMITATIONS

1. NEEDS HUMAN SURVEILLANCE

AI has come a long way in the medical world, [human surveillance](https://www.mobihealthnews.com/news/clinical-ais-limitations-some-are-short-term-others-are-unavoidable) is still essential. For example, surgery robots operate logically, as opposed to empathetically. Health practitioners may notice vital behavioural observations that can help diagnose or prevent medical complications.

### 2. MAY OVERLOOK SOCIAL VARIABLES

AI system may be able to allocate a patient to a particular care centre based on a specific diagnosis. However, this system may not account for patient economic restrictions or other personalized preferences.

### 3. MAY LEAD TO UNEMPLOYMENT

AI may help cut costs and reduce clinician pressure; it may also render some jobs redundant. This variable may result in displaced professionals who invested time and money in healthcare education, presenting equity challenges.

### 4. INACCURACIES ARE STILL POSSIBLE

Medical AI depends heavily on diagnosis data available from millions of catalogued cases. In cases where little data exists on particular illnesses, demographics, or environmental factors, a misdiagnosis is entirely possible. This factor becomes especially important when prescribing medicine.

### 5. SUSCEPTIBLE TO SECURITY RISKS

AI is generally dependent on data networks, AI systems are susceptible to security risks. The onset of Offensive AI, improved cyber security will be required to ensure the technology is sustainable.

ADVANTAGES

1. AI makes healthcare more accessible.

2. Provides real-time data.

3. AI-powered techniques aid in the detection of early disease risks.

4. Streamlines tasks

5. Saves time and resources

6. Ai as unique and unrivalled assistance in surgery.

8. May reduce physician stress.

9. Artificial intelligence (AI) aids in the enhancement of human talents and the promotion of mental wellness.

CONCLUSION

Despite the above limitations, AI looks well positioned to revolutionize the healthcare industry. AI systems can help free up the time for busy doctors by transcribing notes, entering and organizing patient data into portals (such as EPIC) and diagnosing patients, potentially serving as a means for providing a second opinion for physicians. Artificially

intelligent systems can also help patients with follow-up care and availability of prescription drug alternatives. AI also has the capability of remotely diagnosing patients, thus extending medical services to remote areas, beyond the major urban centres of the world. The future of AI in healthcare is bright and promising, and yet much remains to be done.

REFERENCE

[www.wikipedia.com](http://www.wikipedia.com)

[www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov)