

ARTIFICIAL INTELLIGENCE IN HEALTHCARE(A BRIEF STUDY)

Author:-Pankaj Kumar Singh

UID:-24MCA20067

ABSTRACT

As we all have come across the word A.I i.e artificial intelligence.Now what is artificial intelligence ? As the term suggests artificial means which is produced with some man made efforts not occurred naturally and intelligence means to acquire knowledge and skills.So artificial intelligence means the ability of man made things to acquire human knowledge and skills.In todays generation A.I has taken the control over the world.In every sector A.I is used in almost every sector.In this context I will focus on use of A.I in healthcare.As in todays generation almost everyone needs medical cure due to increase in various types of pollution in the environment.With recent progress A.I has also taken over healthcare.In this research analysis we will discuss the use of A.I in various fields such as radiology,diagnosis,cancer treatment etc.A.I can be applied to various types of health cares such as neurology and cardiology etc.Thus I would conclude this brief discussion by saying the future of the world is A.I in every fields.

INTRODUCTION

Artificial intelligence has taken full control in almost every fields.One of the most growing fields is healthcare.Although AI may not replace doctors in future but it will definitely assist every physicians and doctors to identify the diseases.AI can be applied to various healthcare systems.Cancer,neural disease and cardial disease are the most common diseases that are detected by use of AI tools.We believe that it will take many years for AI to replace in this field.Before introducing these techniques it must be equipped with human thinking i.e AI for proper functioning of the equipments.Moreover an AI machine displays the usefull information about the infected patients and inferences for health risk alert.This research paper seeks to draw the attention towards brief study of AI in healthcare facility and its implications for the future of health care.To ensure smooth working of AI tools there is a need to develop ultra modern equipped

machines with good algorithm for foster multidisciplinary working.

ARTIFICIAL INTELLIGENCE IN BIOMEDICAL PROCESSING

AI algorithms can analyze the medical images such as X-rays, CT scans and MRI scans with much accuracy and speed by detecting anomalies and early signs of disease. AI is changing the time-consuming and expensive traditional drug discovery process. AI algorithms can analyze large data sets to identify potential drugs, predict their effectiveness, and even optimize their chemical structures. Through AI-based virtual screening and prediction modeling, researchers can accelerate the identification of promising drug compounds, thereby accelerating the development of new treatments for various diseases. Virtual healthcare assistants and AI-powered chatbots are transforming care management and patient interaction. These interactive tools can provide patients with personalized health information, medication, and appointment reminders, and assist with chronic disease management. Virtual healthcare assistants allow patients to take a more active role in their healthcare, leading to better adherence to treatment plans and better overall health outcomes. The ability of AI to process large amounts of patient data enables the development of

predictive models capable of predicting patient outcomes and disease trajectories. By integrating patient demographics, medical history, and treatment data, AI algorithms can identify high-risk patients, allowing healthcare providers to proactively intervene and prevent side effects. Computer algorithms copy the system made for processing elements configured by graphic design. This technique helps in processing of medical images which are very useful in health care disciplines such as surgical procedures, cardiology, gynecology etc. These images include gamma rays, positron emission tomography, infrared imaging, X-ray, MRI etc.

AI FOR LIVING ASSISTANCE

AI applications use the smart robotic systems for smooth working and improvements. A fall-detection system based on radar Doppler time–frequency signatures and a sparse Bayesian classifier can reduce fall risks and complications for seniors. In fact, “smart communication architecture” systems for “ambient assisted living” (AAL) have been developed to allow AI processing information to be gathered from different communication channels or technologies, and thus to determine the occurrences of events in the network environment and the assistance needs of elderly people. The “ambient intelligence” of smart homes can

provide activity awareness and ensued activity assistance to elderly people such that AAL environments allow “aging in place”—that is, aging at home. For example, the activity-aware screening of activity limitation and safety awareness (SALSA) intelligent agent can help elders with daily medication activities. In the area of assisted living for elderly and disabled people, AI applications using corresponding smart robotic systems are paving the way for improvements in life quality. An overview of smart home functions and tools offered for people with loss of autonomy (PLA), and intelligent solution models based on wireless sensor networks, data mining, and AI was published recently. NNs can be trained with specific image-processing steps to recognize human facial expressions as commands. Furthermore, human–machine interfaces (HMIs) based on facial expression analysis allow people with disabilities to control wheelchairs and robot assistance vehicles without a joystick or sensors attached to the body.

AI IN BIOMEDICAL RESEARCH

In addition to being able to act as an “eDoctor” for disease diagnosis, management, and prognosis, AI has unexplored usage as a powerful tool in biomedical research. On a global scale, AI

can accelerate the screening and indexing of academic literature in biomedical research and innovation activities. In this direction, the latest research topics include tumor-suppressor mechanisms, protein–protein interaction information extraction, the generation of genetic association of the human genome to assist in transferring genome discoveries to healthcare practices, and so forth. Furthermore, biomedical researchers can efficiently accomplish the demanding task of summarizing the literature on a given topic of interest with the help of a semantic graph-based AI approach. Moreover, AI can help biomedical researchers to not only search but also rank the literature of interest when the number of research papers is beyond readability. This allows researchers to formulate and test to-the-point scientific hypotheses, which are a very important part of biomedical research. For example, researchers can screen and rank figures of interest in the increasing volume of literature with the help of an AI to formulate and test hypotheses. Moreover, AI can help biomedical researchers to not only search but also rank the literature of interest when the number of research papers is beyond readability. This allows researchers to formulate and test to-the-point scientific hypotheses, which are a very important part of biomedical research. For example, researchers can screen and rank figures of interest in the increasing volume of literature with the

help of an AI to formulate and test hypotheses.

PRESENT USAGE OF AI IN HEALTHCARE

In the existing world, industrial and technological revolutions are accelerated by the global application of new-generation communication and information technologies like IoT (Internet of Things), AI, blockchain technology, and so on. There are a variety of dimensions in healthcare where AI is now emerging as a game changer. Here are some highlights of it:

- * **Discovering drugs:** From analysing vast databases of information on existing medicines, AI-based solutions are being developed for the identification of new potential treatments and therapies. This would help in redesigning existing treatment structures, and medicines to overcome critical threats that have been coming into the picture since the last decade, like the Ebola virus and Coronavirus. AI would improvise the success rate and effectiveness of respective drug evolution and quicken the process of introducing new drugs in the market to counter these deadly diseases.

- * **Radiology:** AI-based solutions are being developed to robotize image examination and diagnosis. This would help in highlighting the areas of attention in a body to the radiologist via a scan, and will also give high efficiency

by avoiding any sort of human error. Recent inventions of tumour detection in a body via CTs and MRIs demonstrate the growth of new ways of cancer prevention. With the speed at which the evolution of AI is going on, radiology is growing simultaneously in other areas and is directly proportional to fast-growing computational and data power.

FUTURE OF HEALTHCARE USING AI

From patient self-service to chat bots, computer-aided detection (CAD) systems for diagnosis, and image data analysis to identify candidate molecules in drug discovery, AI is already at work increasing convenience and efficiency, reducing costs and errors, and generally making it easier for more patients to receive the health care they need. For the coming few years, the worthwhile opportunities for AI in healthcare are hybrid models, where clinicians are given assistance for diagnosis, risk factor identification, and treatment planning but hold on to the final responsibility of patient care. This would help both patient and doctor to adopt these tools by analysing the risk involved, and it would be easy for healthcare experts to deliver operational efficiency and measurable progress in patient results. Keeping aside the above challenges, AI is occupying its place in this industry and soon become a support system for healthcare providers and will begin reducing their burden. AI is also becoming capable of diagnosing patients

remotely who can't afford to come to big hospitals. Extending the efficient medical facilities to backward areas would become easy. Future of AI in this industry looks promising, achievable and bright, so a lot is to be done in AI. The treatment through AI costs more, but as soon as it will come in form it will offer sophisticated, quick and efficient diagnoses. This would also make training of medical students easy and more interesting via naturalistic simulations that gives real-time feel, even the computer-driven algorithms can't offer this.

CONCLUSION

With abundant issues to counter, guided by well-documented elements such as increasing chronic diseases, ageing population, etc. the requirements for bringing new and innovative solutions in healthcare is clear. AI-based solutions have directed small steps towards resolving key problems, but still have too much to achieve to create a meaningful impact on the healthcare industry globally, despite the media attention it owes. If the upcoming severe challenges of the healthcare industry would be countered successfully via AI, then it could have a major impact on this industry whether in terms of augmenting resources, ensuring patient outcomes, or future operations. With abundant issues to counter, guided by well-documented

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