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Artificial intelligence in healthcare: Boon or bane

Renu Mahajan

Professor, Chandigarh University, Mohali, Punjab, 140413
Email: renu.uils@cumail.in

Parneet Kaur

Research Scholar, Chandigarh University, Mohali, Punjab, 140413
Email: adv.parneet@gmail.com

Abstract---Artificial Intelligence is the approach in which we create artificial human intellect to understand and act rationally in the particular situation. This is basically engrossing human intellect in a machine for the growth of mankind. It is not a new concept and can be traced back to the Ancient Greek thinkers who encouraged the coding of machines with the ability of rationalized thing as of Human Brain. In Medicine and Health Care, Artificial Intelligence has advanced from PC projects to help the examination of clinical pictures to its joining in pretty much every clinical and hierarchical area. This paper gives an outline of the current and not so distant future uses of Artificial Intelligence (AI) in Medicine and Health Care and presents a characterization as per their moral and cultural viewpoints, likely advantages and entanglements, and issues that can be viewed as questionable and are not profoundly talked about in the writing.

Keywords---artificial intelligence, accessibility, technology, socio-economic.

Introduction

Artificial Intelligence (AI) is another domain of science and innovation. It as of now influences numerous human exercises at all cultural levels, from people to gatherings of people, enterprises and countries. Simulated intelligence is extending quickly, around the world, in pretty much every mechanical, conservative and cultural area, from data advancements to business, fabricating, space, far off detecting, security and guard, transport and vehicles and, since the

start of the XXI century, it is rapidly sneaking into Medicine and Health Care*. The quick and amazing advancement of AI is encouraged by numerous elements. Among them,

- The accessibility of amazing and savvy registering (handling) devices, equipment (designs preparing units), programming and applications, – even in customer grade PC's and cell phones and of large informational indexes, with a wide range of types and arrangements of data, both in on the web and cloud stages and produced continuously by client wearables and the web of-things (WoT),
- The extension of open source coding assets and online networks of clients and specialists sharing assets, mastery (expertise), and experience, and
- The blend of PC handling with different innovations, for example, photonics (converging of applied optics and gadgets) and human-machine interfaces†.

Artificial Intelligence in Medical Procedure

In Medicine and Health Care, AI has advanced from PC projects to help the examination of clinical pictures to its joining in pretty much every clinical and hierarchical area‡. Radiology was at the front line of this change, along with various parts of a medical procedure utilizing expanded reality devices and careful robots. They were immediately trailed by other picture based fortes i.e. pathology, dermatology, ophthalmology and, all the more as of late, by basically all spaces of Medicine and Health Care, from general practitioners to crisis departments, epidemiology, and illness management. Frameworks for "PC helped analysis" have extended to incorporate online associates application like chat bots – both for quite certain clinical territories like oncology, foreseeing the reaction to treatments and for the general public–, and "clinical robots" presently incorporate "social sidekicks" for hospitalized individual, especially children and the elderly§. Likewise, wearables and WoT gadgets take into account continuous checking of physiological data, even at home and coordinated with clinical and online media information, can trigger clinically related robotized mediations from suicide avoidance calls to police to medicine delivery.

Concerned even sound residents would now be able to arrange direct to customer hereditary tests among a huge number in the market. New instruments for huge information displaying, investigation, and perception are likewise growing, and give significant, changing upgrades in clinical pathways, from the age of "computerized twins" of individual patients to self-administration of treatments. There are even on the web, swarm shared stages for such top of the line applications as radiotherapy. Numerous administration viewpoints identified with wellbeing economy i.e. expanded effectiveness, quality control, extortion decrease and policy additionally advantage from the new AI intervened instruments. They much offer any new desires for upgrades in wellbeing for conditions with

* Dubber, M. D., Pasquale, F., & Das, S. (2020). *The Oxford handbook of ethics of AI*. New York, NY: Oxford University Press.

† Bundy, A. (1988). *Artificial intelligence: Art or science?* Edinburgh.

‡ Rich, E. (1983). *Artificial intelligence*. New York: McGraw-Hill.

§ Woolf, A. (2003). *Artificial intelligence*. Austin, TX: Raintree.

decreased resources and in creating regions**. In any case, specialized challenges and moral concerns remain, and new significant inquiries emerge.

Stages of Artificial Intelligence in Medical Procedures

Application of Artificial Intelligence has made a significant change in the level of medical efficiency. It has made the diagnosis quick and far more accurate than being done by the manual method. The basic pattern of application of technology in health care is somewhere the same just with little variation depending upon disease and its nature of effect on an individual. Broadly speaking Artificial Intelligence can be classified in 4 different stages according to their applicability and usage in the health care sector. Four main stages can be classified as:

- i. Identifying the affected area to be intervened: The first and the most important part is the identification as the future of the treatment is totally dependent upon how accurately the disease has been identified. In a common practice Endoscopy is done by inserting a thin tube from the mouth having a camera attached at one end and a monitor attached on the other, to observe the internal functioning of organs. This can further be used as a guiding tool to perform minor surgeries with small incision known as Keyhole surgery.
- ii. Rule out the possibility: With the help of the examination conducted by such intervention it can be easily ruled out whether the actual problem exists or not and if it existed, the extent of loss caused due to the disease and even help in reaching to the possible direction of treatment for better recovery of the patient.
- iii. More effective and faster clinical trials: The results given by the intervention of Artificial Intelligence methods are more accurate and at quicker intervals of time. This helps in providing the right treatment within the time frame without wasting a single fraction of time further which helps in a better standard of life and even increasing life span also.
- iv. Establishing the biomarkers for identification of disease: It is easy for the medical expert to treat the patient when he is pretty sure of the disease and its position and effect on the body. It can be very well understood with the given example: In today's every biopsy is ultrasound guided in which the exact location of incision is guided and according to the direction suggested the small incision is made through which a gun formed injecting is triggered in the body which collects the sample from the desired location in just a fraction of time, which is far more effective, accurate and bare minimum harmful to the patient.

Requirement of Experts

Artificial Intelligence frameworks present significant applied difficulties for doctors. The most significant is the discussion between AI-supplanted or AI-

** Bibel, W., & Petkov, B. (1985). *Artificial intelligence Methodology, systems, applications: Proceedings of the International conference on artificial intelligence: Methodology, systems, applications*, Varna, Bulgaria, 17-20 September, 1984. Amsterdam etc.: North-Holland.

improved doctors. As in some other area, the presence of even incompletely mechanized frameworks delivers profound expert changes, as certain positions will be lost and new ones will emerge. Current frameworks for clinical applications might be generally considered as "feeble AI" that is, they can prevail at "limited" assignments and be valuable aiding human doctors in dreary, dull exercises i.e. discovering components or sectioning organs or constructions in pictures. As referenced, clinical claims to fame managing visual examination of pictures have begun to test generous changes through such "guides". Primary concern is that modernized frameworks can handle many, a lot a larger number of pictures than any human administrator can, without weakness and time imperatives, and if appropriately prepared with surprisingly better outcomes. Computer based intelligence frameworks likewise show awesome execution in the acknowledgment of regular language and composed writings, which thusly open the best approach to separating data – for frameworks to gain from numerous accessible sources i.e. Clinical records which are not normally accessible in organized, valuable configurations.

In any case, when all said is done, clinical AI frameworks do not have the capacity to "decipher" the unique circumstance and "produce" the most particular human highlights (inventiveness, feelings), and can't be thought of (yet) as "solid" or "general" AI. Albeit numerous inquiries remain, AI frameworks can improve numerous parts of specialist's undertakings and those experts deciding not to utilize them will be obsolete.

The accessibility of enormous measures of information passing on totally different kinds of data of every individual patient likewise requires new expert profiles – not really doctors to investigate and remove the most helpful things for conclusion and treatment. Hereditary guides are as of now joining clinical groups to help patients yet in addition experts in understanding the mind boggling quality related information. The expansion of novel wellsprings of information – in the predictable worldview of "extended customized medication"– will probably require some different profiles of "clinical information researcher" for particular guidance for doctors and patients^{††}.

Medical care isn't only a scholarly connection yet exceptionally friendly, particularly important in circumstances of fundamental significance i.e. choices with impacts on life quality, palliative consideration and wilful extermination. There are various perspectives on trust, sympathy, and the adaptation of care, and how they can be influenced by the new truth of mechanized frameworks, from the decrease of clinical mistakes to the chance of AI-frameworks assisting people with taking troublesome choices, to the plan of better specialist AI and patient-AI association strategies. Defenders of AI-improved human specialists considered to be of new devices as an incredible method to recover human parts of the connection between the specialist and the patient however the genuine outcomes are yet unknown.

^{††}Garnham, A. (1988). Artificial intelligence an introduction. London: Routledge & Kegan Paul.

Significance of Artificial Intelligence

A main point of contention in of the best significance in all AI-related zones is that of progressively self-governing systems. In the clinical and careful fields, their abilities may incorporate the choice about living souls and, on the off chance that they at any point become accessible, which would be their moral rules. For some individuals, this situation may appear to be stunning; however there is a current discussion about a point that shares a portion of the contentions and positions, specifically which about deadly self-ruling weapons frameworks. Such gadgets have effectively unveiled their way to the even to be talked about at the United Nations – as this sort of examination has been in any event incompletely uncovered and early frameworks start to be shown.

Reasonableness and Imbalance

Worldwide figures and market of AI in Medicine and Health Care conjecture applicable, positive effect for the coming years. Notwithstanding, the financial investigation should incorporate the moral and social focuses identified with wellbeing frameworks, the enterprises and the patients. Note that the expense of translating a human genome is significantly low, in the request for a couple hundred euros however the costs of some of AI-intervened medicines, like certain customized drugs, may reach "unimaginable" figures, even in the request for a great many euros for each case. This lofty advance is because of the troubles of separately fitting medication atoms to the particular genome of a person. New models of wellbeing inclusion, protection, and moderateness might be needed as such clinically superb advancements represent an unmistakable danger of developing into a critical expanding element of disparity for a great many people.

Demerits of Artificial Intelligence in Health Care

Genetically modified living beings are getting normal in agribusiness and cultivating to build profitability and diminish the effect of maladies and infections, and the subject of moderately dynamic social discussions in certain nations. In 2018, human quality altering – and the moral questions made to the features as the initial two "designed twins" were brought into the world in China. From a "positive methodology", the "rectification" of "wrong", changed qualities to stay away from extreme sicknesses, significant inquiries promptly emerge: Does it truly work? Regarding sway on the human hereditary legacy, at what cost? It has effectively been distributed that these two children present obscure deformities and unusual future turn of events. At that point, is it moral to plan "test people"? What will occur if those individuals become grown-ups and reproduce? Will there be any cut off points in the qualities to be changed? That is, if the method is in fact doable, will anybody design a few kinds of "super-people"? Ought to there be some sort of oversight of this exploration? A large portion of these inquiries are basic to other questionable spaces of AI applications, have scarcely been asked and don't have any reasonable answer yet.

Another problematic utilization of quality altering innovation is the age of human-creature incipient organisms. They are purportedly made to settle the basic shortage of organs for relocate and under the purposeful furthest reaches of their

makers of growing just required organs in hereditarily adjusted, not suitable, incipient organisms or not allowing new creatures to develop past specific edges. In any case, in 2017, early tests of interspecies (human-pig) cell developing were reported, in 2018 initial phases in a human-sheep undeveloped organism was uncovered, and in 2019 Japan officially approved this sort of examination under certain restrictions. A tightening up in this field is given by the as of late revealed advancement of a model of a 'living machine' – likewise viewed as a 'natural robot' ('biobot')– in light of creature cells⁹⁴, and the quest for counterfeit types of life for military applications.

With a moderately little research facility and the appropriate information and apparatuses, quality altering can be accomplished. There are a few reports of people going through self-experimentation, who adjust their DNA and once again introduce it in their bodies, in a novel kind of "resident science approach" named bio hacking. Their planned reason for existing is by and large to get "improved capacities" however this kind of exploration additionally presents expected revenue for the wellbeing market. Notwithstanding, the accessibility of certain AI-intervened apparatuses like equipment, programming, and datasets may likewise open the best approach to pernicious types of bio hacking. Quality altering joined with such utilization of AI innovations present a stressing, delicate limit to weaponization and bioterrorism. Hereditarily changed living beings can be extremely hard to recognize and follow. They may be even put away and shipped as modified cells in a transporter individual focusing on explicit people or populaces.

Artificial Intelligence in Medicine and Health Care is not, at this point a detached control however laying at the convergence of medication, sciences and designing, and social orders including morals, reasoning. It as of now has profound effects on numerous issues identified with human wellbeing and prosperity at various scales and the outcomes of the wide scope of continuous advancements may influence essential ideas covered by global guidelines, from the Hippocratic Oath in Medicine to the basics of freedom of thought as proclaimed in the Bill of Human Rights.

Artificial Intelligence in Medicine and Health Care is an extremely powerful region, unavoidably connected with the quick development of different advancements, fundamentally those identified with PCs, photonics and various parts of designing. It has numerous positives points of view along with disputable and plainly negative angles. In certain applications, AI and AI-interceded devices even develop to scrutinizing the definition and the restrictions of life. Be that as it may, which is the general visibility about such research? Generally logical and mechanical activities get public assets and society needs educated choices and thorough data to general and expert crowds, as in different spaces of AI. Some particular rules start to show up for enormous information and advanced health, and surprisingly a "does no damage" approach has been planned recently, yet the vast majority of the uses of AI in Medicine and Health Care appeared to be specific, those that present the most clashing viewpoints are neither referenced nor being investigated at this point. As referenced, a portion of these points have as of late characterized as dire needs for the coming decade by the WHO.

Be that as it may, the necessary investigation isn't simple. The classification of innovations as "great" or "terrible" is emphatically reliant on numerous variables, in which abstract, individual and cultural qualities assume a fundamental part. While it appears to be apparent that level headed, proficient models ought to be characterized for legitimate judgment, the Phenomenal effect of Medicine and Health Care on individuals and society rises above a "specialized assessment" and needs to contemplate social, moral and social standards also. To expand the intricacy of the investigation, the acknowledgment and likely development of the utilizations of Artificial Intelligence identify with diverse adjusts of government assistance impacts and monetary, topographical even political viewpoints, however they are basically connected to the individual, immaterial characteristics – in light of trust—that design the (current) relationship of specialist and patient.

Conclusion

The scope of uses of Artificial Intelligence and Artificial Intelligence-intervened advancements in Medicine and Health Care is tremendous and quickly expanding, with numerous incredible potential both positive and negative results, which may influence the person and society at all scales. The majority of the inquiries gathered in this survey stay testing as their answers are not yet clear as of now, however we will likely open the route for a multidisciplinary, public conversation of the raised issues to characterize the standards, moral and cultural rules – and expected limits on this matter.

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