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A Role of AI in Personalized Health Care and Medical Diagnosis

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Abstract:

Artificial intelligence is often portrayed as evil robots ready to take over the world but we're here to make the case that AI can literally save the lives of millions of patients around the world and improve healthcare with tools decide on an accurate delivery. It can have a computer model that, based on the experience of thousands of other patients, knows whether a treatment will work, and based on what is best for that patient and their individual circumstances. AI enables us to gain a deeper and more comprehensive understanding of human health than we had before. Medical software has consisted of medical devices also known as AI-based software for diagnosing, treating or treating diseases such as invasive surgery, or most software with the same effect, whenever used by a patient or physicians' role. No matter how many times we use it. In other words, AI software behaves very differently from most software in healthcare due to its inherent ability to learn and evolve overtime, ideally intelligently large enough to fit the predictors of the context in which it is used and improving health outcomes.

Keywords: Villain robots, takeover, improve healthcare, refined, surgical implants, intrinsic ability, regulation frameworks, transparent reporting mechanism, adaptive, accurate prediction.

Introduction: Artificial intelligence, where computers perform tasks normally thought to require human intelligence, is now being talked about in almost every field of science and technology and there is ample evidence that modern computers can have human-like skills in visual imagery. It has led to significant improvements in speech recognition and natural language processing. All of these developments open up questions about how such capabilities might contribute to, or even enhance, human decision-making about health and health. Two recent high-profile research papers have shown that AI is capable of performing clinical analysis on medical images in the same way as experienced physicians.

AI is increasingly important in clinical practice, including its potential applications such as diagnosis, treatment recommendations, and patient engagement. It also discusses the associated challenges, discussing ethical and legal considerations and the need for humanities. Digital healthcare offers many opportunities to reduce human errors improve clinical outcomes, track data overtime, etc. The availability of computer simulations (the use of AI for medical services a advances not only electronically, such as providing patients, family and therapists with data generation and recommendations to be made .It can help identify accurate populations or environments a disease frequency or the presence of high-risk behaviors. Research has successfully used deep learning classifications in diagnostic methods to estimate the association between the built environment and obesity frequencies P that vary between these periods.

There have been several demonstrations of the potential benefits of artificial intelligence methods based on supervised learning for use in medical research, we can see through illustrative examples, focusing on the quantitative understanding of a it involves the characteristics of datasets, the definition of the problem, and the criteria for scoring the sets based on the characteristics of the comparison.

Importance of AI: AI has been around for decades and its promise to change our lives has grown exponentially, with many promises still unfulfilled. Fueled by an increase in the potential of computing hardware and related algorithm developments, as well as a bit of hype, AI research programs have ebbed and flowed the JASON 2017 report for this history and also includes current AI changes that state:

"Since 2010, the AI industry has been rocked by the dramatic and unexpected development of a particular decades-old technology: multilayer neural networks (NNs) this reinvigorating revolution in a particular AI industry this from a combination of two evolutionary developments passed a quality threshold

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Fast hardware graphics processor units (GPUs) that allow training of much larger- and especially deeper such as multiple layer-meshes, and large labeled datasets (images, web queries, social networks). , etc.) That can be used as training testbeds. This combination gave rise to the "Data-driven paradigm" of deep learning (DL) in deep neural networks in particular and the architecture that turned out to be Convolutional Neural Networks (CNNs)".

Literature review:

AI is a powerful image analysis tool that is widely used by radiology professionals for early diagnosis of various diseases and reducing diagnostic errors when prevented AI is also an intelligent and potentially functional tool for ECG analysis and echo cardiography charts for decision support by cardiologists.

AI-powered wearable devices and mobile applications can monitor vital signs, track behavioral patterns, and provide real-time feedback, empowering individuals to actively participate in their health care In terms of analytics AI algorithms are asleep have demonstrated remarkable accuracy and efficiency in detecting medical conditions are. Deep learning models such as convolutional neural networks have been successfully used in medical image analysis, enabling early detection of diseases such as cancer, cardiovascular disease and neurological conditions.

A cancer diagnosis can be very complicated, for doctors to decide whether to diagnose primary or secondary cancer, and for patients, to understand the risks and success of different treatment options because skin cancer is stationary for a challenging diagnostic problem since only a small fraction (3-5%) . about 1.5 million per year). U.S. skin cancer cases) the most severe, melanoma, which accounts for 75% of skin cancer deaths Early detection of melanoma is a serious health issue, and because images can be seen, there are some pages already allows individuals to send their smartphone photos for analysis by a dermatologist -Limited-sensitivity for treatments is 40.2% and specificity is 86.1% and 49.0% /97.6% for dermatologists Let's talk about Peter a cancer patient. She has gone through extensive medical tests, imaging and other types of diagnostic work, but even the best doctors in town can't tell her where her cancer is primarily located, which means she can't get treatment for her cancer specifically, and with less than 10% chance of surviving 5 more years. But many advances in medicine have led to the creation of a tool using AI and patients' genetic data that can now pinpoint the primary location of Peter's cancer and empower doctors to provide Peter with the right treatment that will work. A cancer diagnosis can be very complicated, for doctors to decide whether to diagnose primary or secondary cancer, and for patients, to understand the risks and success of different treatment options because skin cancer is stationary for a challenging diagnostic problem since only a small fraction (3-5%) . about 1.5 million per year). U.S. skin cancer cases) the most severe, melanoma, which accounts for 75% of skin cancer deaths Early detection of melanoma is a serious health issue, and because images can be seen, there are some pages already allows individuals to send their smartphone photos for analysis by a dermatologist -Limited-sensitivity for treatments is 40.2% and specificity is 86.1% and 49.0% /97.6% for dermatologists Let's talk about Peter a cancer patient. She has gone through extensive medical tests, imaging and other types of diagnostic work, but even the best doctors in town can't tell her where her cancer is primarily located, which means she can't get treatment for her cancer specifically, and with less than 10% chance of surviving 5 more years. But many advances in medicine have led to the creation of a tool using AI and patients' genetic data that can now pinpoint the primary location of Peter's cancer and empower doctors to provide Peter with the right treatment that will work. A cancer diagnosis can be very complicated, for doctors to decide whether to diagnose primary or secondary cancer, and for patients, to understand the risks and success of different treatment options because skin cancer is stationary for a challenging diagnostic problem since only a small fraction (3-5%) . about 1.5 million per year). U.S. skin cancer cases) the most severe, melanoma, which accounts for 75% of skin cancer deaths Early detection of melanoma is a serious health issue, and because images can be seen, there are some pages already allows individuals to send their smartphone photos for analysis by a dermatologist -Limited-sensitivity for treatments is 40.2% and specificity is 86.1% and 49.0% /97.6% for dermatologists Let's talk about Peter a cancer patient. She has gone through extensive medical tests, imaging and other types of diagnostic work, but even the best doctors in town can't tell her where her cancer is primarily located, which means she can't get treatment for her cancer specifically, and with less than 10% chance of surviving 5 more years. But many advances in medicine have led to the creation of a tool using AI and patients' genetic data that can now pinpoint the primary location of Peter's cancer and empower doctors to provide Peter with the right treatment that will work.

Conclusions: Artificial intelligence (AI) has revolutionized healthcare by providing reliable support to clinicians and facilities. It helps reduce the stress of the job and also improves the efficiency of the physician. Integrating AI into aspects of patient care and medical diagnosis has led to better diagnoses, personalized treatment plans, and improved health outcomes. AI improves data management, shows how it provides insights that may escape the hands of a physician. AI has been applied in various healthcare areas such as disease diagnosis, drug discovery, patient risk assessment, and more. AI algorithms can use a wealth of medical knowledge and analyze patient data to make hypotheses and suggest possible diagnoses. By complementing physicians' expertise, AI can help avoid cognitive bias and ensure that all possible diagnostic options are considered. It has the potential to improve personalized medicine and even save more lives, AI and machine learning are the driving forces behind growth for the future The amount of data we collect is growing exponentially, IDC research predicts the global data board will be from 33 zettabytes of data in 2018, to 2025 Increasing to 175 zettabytes.

V. Results:

To put it in perspective, the average download of 175 zettabytes of data at internet speed would take 1.8 billion years! This vast dataset, which includes genetic information, medical histories, allergies and other electronic health records, allows physicians to better monitor individual patients and their conditions in ways that were not possible before the current use of machine learning though keeping up with data, paradigms, and identifiable differences that can help experts make better -acceptable decisions. Most applications of AI in developmental or personalized medicine focus on treating individuals with underlying disease: diagnosis of underlying disease, intervention to determine independent factors would include a test that may be more reasonable to offer given what is known about that disorder and how it works, and a test to see if the intervention works. Thus, the majority of applications of AI-based products and devices to enhance personalized medicine focus on individual diagnosis, prognosis, and treatment. A.I. By analyzing a patient's genetic makeup, AI can predict the likelihood of developing certain diseases and help physicians develop personalized treatment plans aimed at patients' specific needs AI can help physicians choose treatments if most effective for individual patients by analyzing large patient databases and pharmacokinetic databases By taking into account a patient's genetics, lifestyle, and other factors, AI can suggest treatments that are more effective and reduce the risk of side effects. A.I. By analyzing patient data over time, the AI can identify changes and trends that could indicate the need for treatment changes and alert physicians accordingly. Overall, the use of AI in general practice has the potential to improve patient outcomes, reduce costs, and enhance health care delivery. By taking into account a patient's genetics, lifestyle, and other factors, AI can suggest treatments that are more effective and reduce the risk of side effects. A.I. By analyzing patient data overtime, the AI can identify changes and trends that could indicate the need for treatment changes and alert physicians accordingly. Overall, the use of AI in personalized medicine has the potential to improve patient outcomes, reduce costs, and enhance health care delivery.

Future scope in healthcare: AI is going to transform healthcare in the coming years as it has the ability to collect data, process it, and deliver a well-defined output to the end-user. A primary objective of healthcare AI applications will be to analyze the relationship between clinical techniques and patient health outcomes. AI techniques will be increasingly used in areas such as diagnostic, treatment protocol development, drug development, personalized medicine and patient monitoring and care. 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. The future of AI in healthcare could include tasks that range from simple to complex-everything from answering the phone to medical record review, population health trending and analytics, therapeutic drug and device design, reading radiology images, making clinical diagnosis and treatment plans.

Reference:

1. Ahmed, Z., Kim, J. and Liang, B.T. (2019) MAV-click: framework towards management. Analysis and visualization of clinical big data. J. Am. Med. Inf. Assoc. Open, 2, 23–28.
2. Makary, M.A. and Daniel, M. (2016) Medical error—the third leading cause of death in the US. BMJ. 353, i2139.
3. Ritchie, M. D., de Andrade, M. & Kuivaniemi, H. The foundation of precision medicine: integration of electronic health records with genomics through basic, clinical, and translational research. Front. Genet. 6, 104 (2015).
4. Stoner, A. and Elemento, O. (2016) A primer on precision medicine informatics. Brief. Bioinform. 17, 145–153.
5. Zeeshan, S., Ruoyun, X., Liang, B.T. and Ahmed, Z. (2019) 100 years of evolving gene-disease complexities and scientific debutants. Brief. Bioinform. bbz038
6. Karczewski, K.J. and Snyder, M.P. (2018) Integrative omics for health and disease. Nat. Rev. Genet., 108, 1111.
7. Marx, V. (2013) Biology: the big challenges of big data. Nature, 498, 255–260.
8. Combi, C. (2017) Editorial from the new editor-in-chief: artificial intelligence in medicine and the forthcoming challenges. Artif. Intel. Med., 76, 37–39.
9. Ahmed, Z. and Liang, B.T. (2019) systematically dealing practical issues associated to healthcare data analytics. In: Lecture Notes in Networks and Systems 69 Springer Nature.
10. Beam, A.L. and Kohane, I.S. (2018) big data and machine learning in health care. JAMA, 319, 1317–1318.
11. Raghupathi, W. and Raghupathi, V. (2014) Big data analytics in healthcare: promise and potential. Health Inform. Sci. Syst., 2, 3.
12. Alyass, A., Turcotte, M. and Meyre, D. (2015) from big data analysis to personalized medicine for all: challenges and opportunities. BMC Med. Genom., 8, 33.
13. McShane, L.M., Cavenagh, M.M., Lively, T.G. et al. (2013) Criteria for the use of omics-based predictors in clinical trials. Nature, 502, 317–320.
14. Berger, B., Peng, J. and Singh, M. (2013) Computational solutions for omics data. Nat. Rev. Genet., 14, 333–346.
15. Kim, M.O., Coiera, E. and Magrabi, F. (2017) Problems with health information technology and their effects on care delivery and patient outcomes: a systematic review. J Am. Med. Inform. Assoc., 7, 246–260.
16. Sligo, J., Gauld, R., Roberts, V. and Villa, L. (2017) A literature review for large-scale health information system project planning, implementation and evaluation. Int. J. Med. Inf., 97, 86–97.

17. R. K. Kaushik Anjali and D. Sharma, "Analyzing the Effect of Partial Shading on Performance of Grid Connected Solar PV System", 2018 3rd International Conference and Workshops on Recent Advances and Innovations in Engineering (ICRAIE), pp. 1-4, 2018.
18. 18.R. Kaushik, O. P. Mahela, P. K. Bhatt, B. Khan, S. Padmanaban and F. Blaabjerg, "A Hybrid Algorithm for Recognition of Power Quality Disturbances," *in* IEEE Access, *vol. 8, pp. 229184-229200, 2020*.
19. Kaushik, R. K. "Pragati. Analysis and Case Study of Power Transmission and Distribution." J Adv Res Power Electro Power Sys 7.2 (2020): 1-3.
20. Sharma, R., Kaushik, M. and Kumar, G. (2015) "Reliability analysis of an embedded system with multiple vacations and standby", International Journal of Reliability and Applications, Vol. 16, No. 1, pp. 35-53.
21. Kaushik, M. and Kumar, G. (2015) "Markovian Reliability Analysis for Software using Error Generation and Imperfect Debugging" , International Multi Conference of Engineers and Computer Scientists 2015, vol. 1, pp. 507-510.