Research Article
Malays. j. med. biol. res.

AI Health Check Monitoring and Managing Content Up and Data in CMS World

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ABSTRACT

The advent of artificial intelligence (AI) as a means for improved health care bids extraordinary prospects to advance clinical lineup results and patient, reduce costs, and influence populace health. A1 health check monitoring jobs can take care of executing certain basic and advice rules of cleaning up repositories of data which are not getting used to managing the assets which are referred for a long time deleted that big companies with huge contents and assets struggle in keeping the server up and running 24/7. Thus, the objective of this article is to understand the "why to" and the "how-to" of employing all the major health systems in the CMS world. Also review artificial intelligence when compared to human intelligence in the health sector, Data bias, diversity in artificial intelligence teams, and impacts of artificial intelligence on the patient-provider relationship. To give this subject matter, we deployed literature approaches to examine major content that will help in achieving the purpose of this study. The review shows the need for a combination of artificial intelligence and human intelligence produces an augmented intelligence that focuses on creating a more assisting and supportive role for the algorithm. Also, it portrays trust, equity and inclusion need to be prioritized in the healthcare artificial intelligence development and deployment processes, and data management.

Key words: Artificial Intelligence, Health Check Monitoring, CMS, Human Intelligence

INTRODUCTION

With the expansion in technology comes the need of carrying out the task with little or no human interference, especially in fields where the value of work to be done voluminous, such sector is the health sector, the word health is used mainly for describing the biological state of an organism it's wellbeing or otherwise (Tan Zhong et al., 2012). In recent times there has been a need for improvement of health care services across every sphere of human endeavor wherever man is found. If we have to achieve this target with effective health care, then the business of managing, monitoring, and maintenance must be prioritized. Artificial; intelligence has over time proven to be the best way out of the several challenges the face-to-face encounter with everyday work and life has found for humans. So machines and utilities are made to remove or reduce human effects and this makes the work a lot easier and more fun. These innovations are however driven by business criteria such as profit, efficiency, and return on investment yet, they make the job a lot easier (Vadlamudi, 2015).

With the improvement in the health sector by artificial intelligence, especially the development of sensor technology, testing technology, signal analysis, and artificial intelligence technology, they are looking at a more robust health management system that will cover a large scope and ensure effective delivery. It is the aim of this study to provide information as to how the innovation will exclusive access to health management and ensure use access at all times possible. It explains the health monitoring management system, its affliction in the content management system world, and the technology to be employed (Ganapathy, 2015).

Problem Statement

A good number of big companies with huge content and assets struggle in keeping the server up and running 24/7. Here, A1health check monitoring jobs can take care of executing certain basic and advice rules of cleaning up repositories of data which are not getting used to managing the assets which are referred from a long time deleted. Health monitoring script can keep track of server central processing unit (CPU) utilization and intake up time so that it can manage to be running forever by having cleanup jobs all through the server up of time interval.

Objectives of the Study

For this reason, the objective of this paper is to understand the "why to" and the "how-to" of employing all the major health systems in the CMS world. Also review artificial intelligence when compared to human intelligence in the health sector, Data bias, diversity in artificial intelligence teams, and impacts of artificial intelligence on the patient-provider relationship. This article is structured into 5 sections; Section 1 is the introduction, problem statement, and objective of the study. Section 2: focuses on definitions of basic terminologies and related concepts. Section 3: the method employed in the study and the outline of the in-depth analysis. Section 4, the results are discussed, recommendations made and further actions suggested in the field.

LITERATURE REVIEW

Based on the need for effective health management systems, this section is divided into two sections; the key technologies and the system form.

The Key Technology

The main driver of this technology is Artificial Intelligence, Artificial intelligence simply behaves like humans. It must imitate some thought and delivery processes and behavior of people. Some of these behaviors are; studying inferencing, thinking, planning, and so forth. Every other addition is hinged on artificial intelligence technology. This ensures that the machine assists the humans and thereby reducing the interference of health workers in this case. This increases the efficiency of the process and removes the clusters brought about by the relations of humans. The AI system has several domains and is primarily classified into two broad domains; methods and applications.

These are shown in figure 1 below.

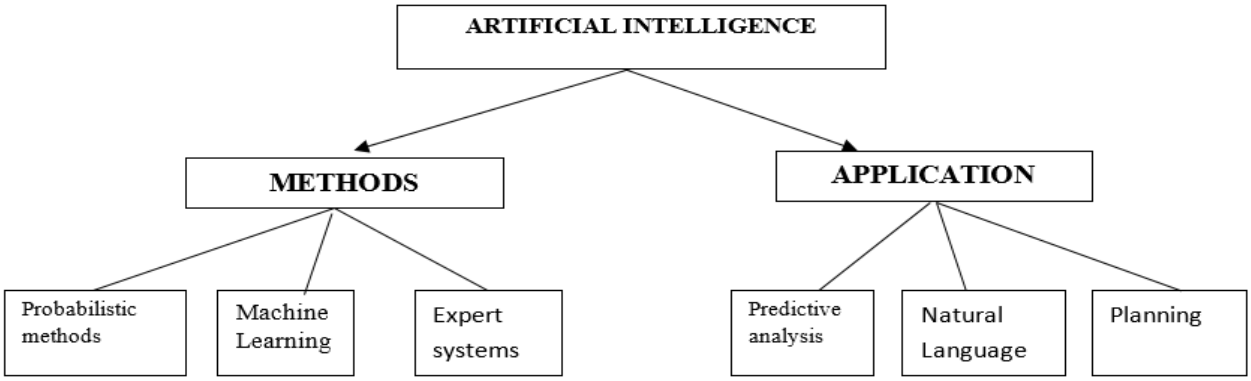

Figure 1: Domains of artificial intelligence

The method domain speaks of the different patterns of execution of the AI protocols, some of the subdomains available here are; expert systems, machine learning, and fuzzy systems. Others are evolutionary computing and probabilistic methods. While machine learning comprises the vector machine usage, the probabilistic methods are; hidden mark-off models and Bayesian networks.

In the application domain, we have quite several sub-domains such as; Speech; speech to text and text to speech, robotics, vision, image recognition and machine vision, predictive analysis, planning and scheduling (where health management systems are executed), and natural language, processing; information retrieval, information extraction, and translation. The health check monitoring management is a subset of the application domain of artificial intelligence. Summarily, the method explains the "how-to" whereas the application explains the "why to".

Machine Learning is made up of statistically and mathematical modeling technique that makes use of a variety of approaches to automatically learn and improve the prediction of a target state, without explicit programming such as Boolean rules (Matheny et al 2019). Different methods such as Bayesian networks, random forests, deep learning, and artificial neural networks, each use different assumptions and mathematical frameworks for how data is ingested and

learning occurs within the algorithm. Businesses with wide coverage are most fond of using machine learning, because of its ability to handle big data, linear and logistic regression, etc. but AI is more frequently used for marketing purposes (Matheny et al, 2019). One way to represent machine learning is to group them, by how they learn how to infer from the data. The subgroups according to this classification are; unsupervised learning, supervised learning and reinforcement learning are presented in Figure 2.

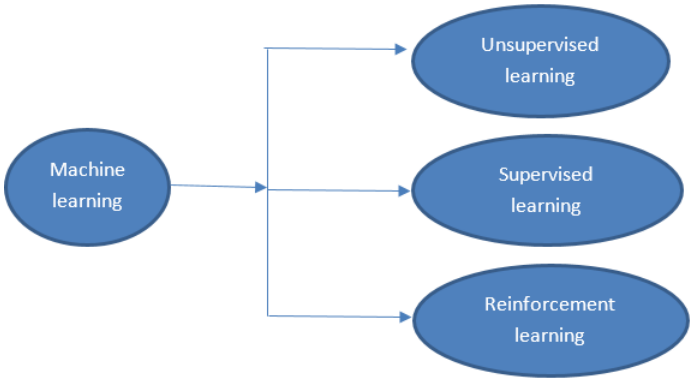

Figure 2: Classification of Machine learning

The technology of Artificial intelligence combines human intelligence with artificial intelligence to augment focuses on a more supportive role for the algorithms. These technologies are designed to enhance human processing cognitive work and not replace it. Apart from artificial intelligence, many other kinds of key technologies are embedded within the technology. Such technologies as; data mining, intellectual material, wireless sensor network, failure diagnose the expert system, BIT technology, and so forth (Abraham and Sheeran, 2007)

Failure Diagnosis: The failure diagnosis is run by the expert system and it is the system of gathering messages from the diagnose target. It gathers several variables such as experiences of the patients, age, medical and family history. It can also call various application programs at any time necessary (Baras and Baker, 2009).

Data Mining: This obtains the non-ordinary course of the effective, novel, potential and useful, finally intelligible mode from a large number of data (Tan Zhong et al., 2012). The data excavate technology can record data, and form the data into usable information for the system and the users. This saves the stress of human interference and inefficiency that may arise from such.

Intellectual Material: This is otherwise called intelligent material. It is the emotional seat of the setup. It has the capacity to perceive, stimulate, analyze, rationalize, judge, and also take certain measures independently and appropriately given a certain situation. Hence, it can respond (Baras and Baker, 2009).

Wireless Sensor Network: This network has no node in the center, instead, by way of random distribution; the nodes of numerous sensors are being disposed of and controlled in the area intensively. The node of the sensor measures the hot infrared, sonar, radar, and shaking signal of the surrounding environment with the aid of various informative sensors which are usually built-in.

Built-in Test (BIT): With the BIT put in place, the system can routinely check itself under a scheduled program and then locate the failure of any unit, post it on the Line replace Unit, and signal for a replacement.

The System Form: The exact operations of the key technologies described in the previous section are put to use here. For an effective health monitoring management system, the following two parts must be duly operational; Offsite Health Monitoring Subsystem (OHMS) and the Onsite Health diagnostic Subsystem (OHDS). The OHMS is responsible for data when the patient is not on the site (Hospital, or vessel as in the case of aircraft or ships) while the OHDS is duly responsible when the patient is in the facility, or on the ground in the case of vessels. The data in-between is kept in circulation by a communication system so that the computing is real-time and does not have to be manually fed into the system.

METHODS

To accomplish the unbiased of this study, we try to review selected pieces of literature to address AI in health monitoring management systems. This approach will us discuss to understand the "why to" and the "how-to" of employing all the major health systems in the CMS world. Also review artificial intelligence when compared to human intelligence in the health sector, Data bias, diversity in artificial intelligence teams, and impacts of artificial intelligence on the patient-provider relationship.

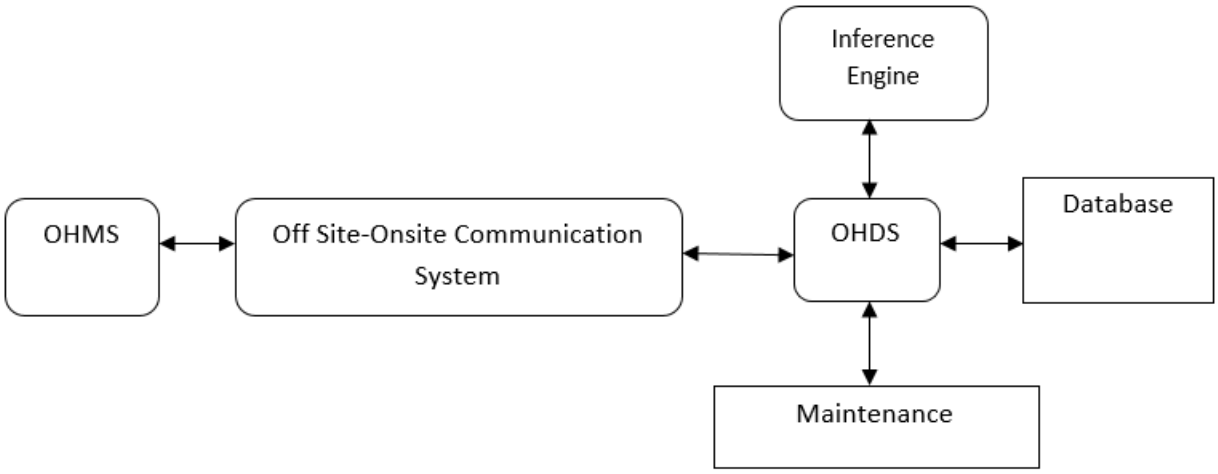

Figure 3: Health monitoring management system

RESULTS AND DISCUSSIONS

Artificial Intelligence and human intelligence

It is somewhat difficult to explain to the common man, how some embedded system of programs will take over the management and control of not just the health records, but the entire process. But in the real sense, artificial intelligence does not concentrate on taking over human interference, but on reducing the inefficiency of the entire process and cutting out redundancy through automation of the processes involved. A combination of artificial intelligence and human intelligence produces an augmented intelligence that focuses on creating a more assisting and supportive role for the algorithm. They are designed to merely assist humans and not to replace them. The algorithms are made rational by subjecting it to reliance on data just like humans. Without data the entire process and the outcomes are unknown and there will not be any need for stress.

However, according to Ganapathy (2016), artificial intelligence algorithms require an enormous level of training data to achieve the performance level needed for success. There are multiple levels of framework and standard put in place to promote data aggregation for use by the AI. They include a functional system for taking note of data both at rest and in motion. For data at rest, mature common data models (CDMs), which include programs specifically designed for carrying out some tailored assignments like patient-centered clinical research (Sun et al., 2017).

For data in motion, the main challenge is that of managing the critical interdigitating with consumer and population health management tools. Some emerging technologies are being used as open standards for helping data and artificial intelligence algorithm outputs flow between applications and the end-user. Also, block chain technology has been adapted extensively in healthcare, to store, transport, and secure patients' health records. Block chain technology has been popularized by the bitcoin implementation and it has a number of advantages that make it a suitable option for users (Vadlamudi, 2016). These benefits are mostly privacy-based, and because patients love to explore discrete means to share their information, block chain technology is widely adopted. It is immutable and very traceable, hence removes the fear of tampering in the minds of the users, so they use it to send data. It also allows for new medical records to be added within the encryption process and therefore the patients will get stronger control over access.

Data Bias

Selecting an appropriate artificial intelligence training data source is very critical because the training data source is a major factor that affects the output observations, interpretations, and recommendations. If the training data are biased systematically, such as in the representation of patients' age, race, the color of eyes, height, sexual orientation, etc., the biases will be modeled, propagated, and scaled in the resulting algorithm. Because of the differences associated with these forms of data, it will be difficult to have a uniform way of configuring the algorithm to work appropriately. But with these biases in place, it will be a case of rewriting the algorithm to consider these biases and then be routed through a series of additional steps with the result in mind and within the successful band of the time allocated for the implementation. This makes the sorting process easily assessable and in turn the fast-track the decision-making time of the algorithm. Remember it has to work emotionally too just like the human mind (Ganapathy, 2016).

Diversity in artificial intelligence Teams

This is an all-inclusive technology that is meant to ensure inclusion to all and sundry, irrespective of gender, age, race, ability, ethnicity, sexual orientation, social and economic status, etc. Apart from the diversities mentioned above, the

peculiarities of the patients' conditions should also be considered when designing the algorithm. For instance, in developing, validating, and implementing artificial intelligence tools aimed at promoting behavioral change to address some chronic conditions of patients like obesity, heart disease, or diabetes, it is very essential to include behavioral scientists to ensure that their particular psychological needs are met so that the program can achieve the desired outcome to the end-user. These forms of artificial intelligence products will depend heavily on prompts such as "good job, nice," etc. Because the intention is to cause a positive change in the patients (Zarsky, 2016).

Impact of artificial intelligence on Patient-provider relationship

Despite the praises given to artificial intelligence health care tools, we must not forget to point out that, there is a major possibility of a few trust issues here and there arising as a result of the implementation of AI technology on health care management. Especially when considering its impact on a large scale such as the national level (Vadlamudi, 2017). This will be aggravated if the use of artificial intelligence leads to worse outcomes for the patients and all efforts to restore balance proves abortive. In order to address the above, thought leaders must raise the need for a prioritization of the healthcare system not based on profit, but based on understanding the importance of health care cost, quality, and access. The areas where the particular bits of help of AI are needed are to be identified by health care leaders, to avoid an override of a working process for one that may not be necessarily accepted or adapted to by the patients. Healthcare is here to serve the patients, and if they do not accept it, then it was a mere waste of energy. The aim is to provide an augmented knowledge for the workforce and very improved outcomes for the patients (Seligman, et al., 2017). Asides from these, the healthcare system must also have a working organizational structure that addresses certain issues like patient-provider relationships, patient privacy, notification and consent, technical development, and other ethical and engineering issues. For this implementation to be successful, several professionals must be a part of the planning, design, implementation, execution, and maintenance stages. Such professionals as; information technologists, data scientists, ethicists and lawyers, clinicians, patients, organizations interested in patients' rights, etc. all these professionals will have to liaise with the government to ensure that no stone is left unattended (Skloot, 2011).

Trust, equity, and inclusion need to be prioritized in the healthcare artificial intelligence development and deployment processes. Patients have to trust that AI will ensure that their ethical values, privacy, and intentions are not stepped on in the quest to provide quality and effective service. We have taken the time to discuss though not in detail, some ethical issues that may arise in the use of artificial intelligence in the health care sector. Some of the codes are highlighted in Table 1 below.

Table 1: A highlight of Artificial Intelligence in the Health Care Sector

S/No	Guiding Code and framework
1.	Artificial intelligence at Google: our principles.
2.	Ethical Operating System: Risk Mitigation Checklist. Institute for the Future and Omidyar Network.
3.	ACM Code of Ethics and Professional Conduct.
4	Corporation on AI.
5	The Worry with Algorithmic Resolutions.
6.	Do No Harm: A Roadmap for Responsible Machine Learning for Health Care. Not harm: A roadmap for responsible machine learning for health care.

One could decide to afraid of the overtake of the health management system by AI, one of which is that there is a possibility of turning physicians into data entry clerks, worsening physicians burnout, and reducing patients satisfaction. (Vadlamudi, 2016). Rather than worsen this burden, it is worthy to note here that AI has a fundamental impact on the patient-provider relationship. It has been emphasized time and again in this study that rather than replace humans, AI is only meant to provide an augmented knowledge to the human workforce because apart from caring out their jobs, humans only can be empathic and carry out their specific roles with love and affection and genuine interest for the peculiar and specific needs of the patients. Also, humans can be generous and can show brevity in advocating for others as well as to do no harm and to advocate for justice and the greater good of others. Rather than be anxious about AI replacing humans, the question to ponder on should be, 'how might AI help clinicians nurture and protect these qualities?' This question is rarely considered for discourse, probably due to the reason that it is usually viewed as messy and hard to define. But if the goal is to enable AI to emulate the best qualities of humans' emotions and intelligence, it is precisely the terrain that cannot be avoided. (Ganapathy, 2015).

AI makes human efforts to produce much more results or eliminates it to the barest minimum where possible. However, we can agree also that just because there is the availability of technological solutions to challenges, does not still justify its usage at all times, because it may not be appropriate at such times to do so. Healthcare is a very complex field cutting across almost all the branches of science; biology, physiology, pharmacology, genetics to mention but a few and incorporates them into the social sciences of human and cultural activities of managing health, hence some

folks consider healthcare to be both a science and an art. For this sort of complexity, we can say that no one formula is a 'can do it all. Every single innovation will only provide augmentation and support to improve upon what has been obtainable (Vadlamudi, 2015).

CONCLUSION AND RECOMMENDATION

To improve the services offered in the healthcare sector, the healthcare sector needs to draw some technological advancement which may include several instances of automation give a talk about some challenges, but also, infrequently create exceptional improvement in the sector. As discussed in this article, the role of artificial intelligence help in sorting the complexity in monitoring management system. It also plays an important in data bias in the sector. Thus, AI is recommended for Health Check Monitoring and Managing Content Up and Data in CMS World for a better service provision.

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