

The Effects of Artificial Intelligence in the Medical Field.

Name: Kow Nketsia-Tabiri

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The Effects of Artificial Intelligence in the Medical Field.

Introduction

Artificial intelligence has been one of the most talked about topics in society lately. There are so many advances it can make either in the medical field, retail businesses and even state businesses such as the post office. Artificial intelligence is a branch of computer science which involves a lot of components. These components are speech recognition, computer vision, statistical learning and so many more. Artificial intelligence basically creates machines and devices that behave like humans. Soon, these devices will take the places of humans in many areas of life. Throughout history, the demand for health professionals has always been high because of the shortage of professionals in the medical field. The demand has been high for most medical professionals specifically nurses and doctors. This demand is due to the overgrowing population from the baby boomers and how people with low income can have access to healthcare (PR Newswire, 2016). An example is the Affordable Healthcare Act. The law has allowed more people to receive more coverage. Thus, to meet this demand Robots can be used to assist Nurses and Physicians in the medical field. In assisting the care of patient's, Robots would create desirable relationships with the patients and medical professionals. These Robotic professionals would be helpful with a lot of issues. These Robotic professionals would be able to solve problems like making up for the inadequate nursing staff and assisting medical and other health care services (Pourmohammadali, 2007). This paper will be discussing the importance of Robots in the Medical field and how they are used. Additionally, this paper will discuss the current use, security, ethical and social implications, and the future use.

Current Use

Although robots are not being fully used now in many places, even the United States, they can be used generally to help the medical field worldwide. Due to the increase in diseases

The Effects of Artificial Intelligence in the Medical Field.

and other infections, patients being admitted to the hospital have increased as opposed to the decrease of healthcare workers. In this case, the robots will be of great help. For example, the usage of Nano-robots is to treat cancers. Medical robots include nano-bots, using microscopic robots that can be swallowed like capsule or injected in the blood stream (Kaur, 2014). The job of these robots seems very long but in actual sense, may only take a few minutes. Once the Nano Robot enter the person's blood stream, they can pinpoint and treat diseased cells, bring drugs for the disease and destroy the cancerous cells. The work of a Nano Robot wouldn't stop there, these Robots are able to observe, identify, and repair the patient's body while occupying inside the patient's blood stream. Currently, there are also Artificial Intelligence in voice commands which is normally found on keypads and other applications as well. “This AI-chatbot is used to control electrical appliances using voice commands from Facebook Messenger (New Delhi, 2019)

Legal and Ethical Issues

There are many legal and ethical issues that come with automated robots and other inventions. One of the developing concerns about automated robots is their ability to preserve humanity within the medical environment. The use of automated Robots poses many concerns in the medical field (Fuji Syoko, Jan 2014). One of the main goals for hospitals is to keep sensitive information of patients safe and protected. Another concern would be if the automated robots can interpret commands that could possibly lead to unethical behaviors. Examples of which include

The Effects of Artificial Intelligence in the Medical Field.

the robot prescribing the patient the wrong type of care or hurting a patient. Emotional relationships would also be another ethical concern. An example would be how the robot reacts to a nurse or doctors' anger when the robot does something it wasn't supposed to do. Lastly, how would the automated robots understand to perform multiple directions from different people; doctors and nurses that is. These questions should be answered realistically before using these robots.

Security

Danger and threats are something that are always occurring every second of the day. When we hear the word "security", we usually think about information and computers. In addition to computers, automated robots can also be in danger so therefore need to be secured. One security risk that automated robots have will be being hacked by hackers. An example would a hacker, hacking in the computer system to steal a patient's medical record. Due to this possibility, there must be defense methods to avoid cyberattacks. This poses a big security threat for the robot and the patient. Another aspect of security would be a patient's privacy. Concerns would be if the robot has ability to keep a patient's records confidential instead of disclosing them. Because of this, there must be logical controls such as encryptions and firewalls to make it difficult for hackers or unauthorized users to access the robots or locate confidential information of patients. Should automated robots be used as an assistant to the nurse or doctor or should it work independently? Questions like these arise when security concerns are taken into consideration (Fuji, 2014).

Future Use

The Effects of Artificial Intelligence in the Medical Field.

Technology and the digital world are the direction the world is progressing toward especially with the introduction of automated robots in the medical field. These robots in the medical field can provide us with safer surgeries and advanced kinds of cutting-edge surgical procedures. This will result in more conditions associated with heart, nervous system and ophthalmology to be treated with minimal invasion and more accuracy. In addition to that, tele-surgical Medical Robots would help surgeons and reach remote locations to perform surgeries on patients. Also, the advancement of Nano-sized robots would be helpful to combat the fatal disease known as cancer (Kaur, May 2012).This would help by patients swallowing capsule Robots and letting these robots flow in a patient's blood stream This would be extremely beneficial to hospitals who have an insufficient number of Medical professionals and to smaller hospitals.

Conclusion

The need of equipment and technology in the medical field is highly increasing. With the increase in age of elderly people, the disease rate and bad health will increase as well. By using automated robots, they could help with better care for these patients. They are crucial in aiding medical professionals in delivering care with better accuracy and precision (The Economist, May 2013). Additionally, robots will be attractive and be an option to healthcare providers. Some reasons are the ability to cut down the cost of care and unburden common tasks from human personnel and improve the precision of the daily tasks to enable advanced forms of rehabilitation and medical care. These robots are very crucial in the medical field. Although they may have some complications, they can be of great benefit to the field.

References

Pourmohammadali, H. (2007). Design of a multiple-user intelligent feeding robot for elderly and disabled Retrieved from <https://search.proquest.com/docview/869799067?accountid=14541> Accessed 2/10/20

Book Source: This article talks about how the robots will be able to assist elderly people with sicknesses and other conditions. It also talks about the increasing age in population of elderly people. The demand of robots in the medical field will be very huge due to shortage of workers in that field.

Magazine Source Below from The Economist (London)

Difference engine: The caring robot. (2013, May 14). The Economist (Online), Retrieved from <https://search.proquest.com/docview/1351995813?accountid=14541> Accessed 2/10/20

This article talks about how robots can help nurses help patients with their daily tasks. It also speaks on how robots should be created to perform other functions to make the work of the doctors and nurses much easier, and to also help people in sick beds as well.

Fifield, A. (2017). Meet the youngsters helping solve Japan's caregiving crisis. like Kunio Odaira, 72.

<https://search.proquest.com/pqrl/docview/1862626137/17C15C15C26844F8PQ/1?accountid=14541> Accessed 2/10/20

This article talks about the research and invention of robots due to the age of workers. In the article, it mentions how municipalities in Japan are recruiting researchers who can engineer to robots that can life the elderly out of their seats, beds and wheelchairs instead of physical nurses. This demand will continue to grow as the population ages.

Fuji, S., Ito, H., Yasuhara, Y., Huang, S., Tanioka, T., & Locsin, R. C. (2014). Discussion of nursing robot's capability and ethical issues. International Information Institute (Tokyo).

Information, 17(1), 349-353. Retrieved from

<https://search.proquest.com/docview/1523725472?accountid=14541> Accessed 2/10/20

The Effects of Artificial Intelligence in the Medical Field.

This source talks about ethical concerns of these robots in the medical field or setting. It talks about how the robot should be able to understand emotions of the patient and the potential risks of robots in the medical field.

What is Artificial Intelligence, and what are its various applications. (2019, Aug 10). *Electronics for You*, Retrieved from <https://search.proquest.com/docview/2274273926?accountid=14541> Accessed 2/10/20

This source talks about how the robots are used and the actions they can perform. It talks about other areas where the robots will be useful. One place was healthcare. It mentions chatbots which can come in using voice commands such as the ones which are integrated in the standard keyboard on phones and other electronics.

Kaur, S. (2012). How medical robots are going to affect our lives. *IETE Technical Review*, 29(3), 184-187. doi:<http://dx.doi.org/10.4103/0256-4602.98859>

This article was used the most to discuss how Medical Robots can be used to assist Medical Professionals in the Medical field. In the article we learned how these Robots would be used to treat patients. For example, Nano Robots being placed in patients to be treated by them. They can also cure diseases like leukemia and cancer.