***Technology and Event***

**AI Diagnostics Globally**

Diagnostics has been around for an unbelievable amount of time. There is modern diagnostics that we mostly know about, but diagnostics is more than just modern medicine. Different methods were used globally and culturally throughout time. Currently, AI has been a big part of diagnostics globally. This event has just continued to grow and shows improvement in finding diagnoses for patients in a faster manner than just researching for unknown diseases, saving millions of lives worldwide. AI itself uses machine learning to take in data and store information. Diagnostics take medical data during the machine learning process to become accurate. There are multiple things labeled as a disease that AI is able to help with in diagnosing, including illness, death, and pain. (*Medical Diagnostic Systems Using Artificial Intelligence (AI) algorithms: Principles and perspectives*)

**AI’s Significance**

Over time, there have been many beliefs on what can cause certain problems. Within different cultures, there have been different remedies that were meant to cure the same thing. As science progressed and communication expanded, people have been able to find similarities and differences between medical problems. One thing that was learned is how some diseases are more prone to certain areas of the world and are extremely rare to other parts. AI has started to become a huge significant in the modern day. As people travel or buy imported items, they could potentially contract one of these diseases. AI is capable of knowing data from all over the world and is able to help doctors with cases like these when they are not familiar with the symptoms. Not only does this help the patient get the correct treatment, but it also helps prevent further harm from misdiagnosis.

**Societal Influences**

As mentioned, diagnostics has been around for a very long time and has been different in many societies and cultures. Using different cultural techniques, people were able to figure out different methods of treatment that work as well as different techniques of testing or recognizing a medical problem. Humans have been able to collect data from all over the world from different countries and different cultures in order to train AI to recognize as much as possible. Without the information that humans have gathered, artificial intelligence wouldn’t be as useful as it is. If only data from one country was used, then it wouldn’t be able to detect an issue that is native to another country. Written in an article found in the Israel Hayom Magazine shows an example of how AI was able to help detect an intracranial bleed and was able to diagnose it, saving the man's life. (*Israelhayom.com*) Another example of how AI itself is able to influence society is when it is used to help predict weather conditions; it is able to allow farmers to make adjustments to how they want to farm in the day, weeks, or months to come. (Bryson, 2024)

**History Lens and AI**

With the long history of diagnostics, I chose to use the history lens. It shows the truth and struggles before AI diagnostics was even invented. This allows people to learn useful artificial intelligence at the event. However, the history of the event itself is not very long, and while including AI, over time, people keep on improving how it all works. Algorithms help improve technology, while science helps improve the course of the event. The more we as humans learn about it, the more advanced AI diagnostics get. In modern medicine, they have now started to develop an assortment of different frameworks meant to help different types of diagnostics. (Zhang et al., 2022) Diagnostics has a long history in itself. The data over time can be used within the newfound AI systems of the modern day. Diagnostics started thousands of years ago, but it is hard to pinpoint an exact day since there have been many types of diagnosis within many different communities and societies.

**Thesis Statement**

Overall, we see diagnostics growing with the help of artificial intelligence. History has shown how it has grown step by step. With the help of multiple cultures around the world, people were able to build a system to teach AI about all different kinds of diseases. As our knowledge becomes more and more advanced, we are able to retrain AI systems to stay up to date. This allows AI to continue to help people all over the world.

***Analysis***

**AI’s Impact**

Artificial intelligence is capable of affecting multiple different institutions. This biggest impact would be on the community. However, most people may not know someone who is in need of AI diagnostics; that one person could be an important person those people may need in the future. If AI diagnostics weren’t such a fast reference, then the person's life may not have been able to make it. For example, the person who is sick happens to be one of the best co-pilots there is. If he was supposed to have been on a plane where the captain passed out, he would not have been able to save everyone on the plane without AI saving him first. This shows how the system can save lives through other means than just a single patient. Another example of the impact on the community is through the economy. With the amount of data AI is able to harbor,  one doctor can do more and save money. It also saves money by preventing unnecessary testing and treatments. (Tetiana Habuza, 2021) Another example is personal family. Artificial intelligence is able to make diagnostics quick. Reading the diagnosis will allow the family to choose a treatment plan based on a doctor's expertise. If a treatment plan was not planned in time, then that family may have lost a loved one. This defeats the purpose of why people are utilizing AI in diagnostics.

**Social Practices**

One way artificial intelligence has been shaped is by knowing some weaknesses behind it. One weakness is bias. Though all bias is not avoidable, the knowledge of knowing it is there helps to fight it. This being said, in social practices, it is crucial to include data from all over the planet. Not every disease is located everywhere. Without including that data then, the diagnostics could become irrelevant and incorrect. If a person caught something not from their native area and the diagnostics only included data from their area, then this person would not be treated correctly. This means either the person does not get better, or even worse, they my get worse. So many deaths occur in the country of The United States alone due to medical mistakes like diagnosis. (Saposnik et al., 2016). Artificial intelligence is being used to help combat this and lower the death toll.

**AI’s limitation**

Just like all technology, AI has limitations. The main limitation of artificial intelligence is it will only know what it is taught. Though we may believe it is unstoppable in its knowledge if we do not continue to teach it as humans learn more, then it will not know this newfound knowledge. Another thing to keep in mind about artificial intelligence is that it is just a piece of software. Yes, it may be a powerful tool, but it needs a computer host, which means it needs what a computer needs. Electricity becomes another weakness for AI. Without it, a computer cannot power up, and without a computer powering up, the software cannot run. Also, being a computer program, it is also vulnerable to cyberattacks. (*Pros & Cons of Artificial Intelligence in medicine*) There are people who will try and access the data to inflict harm or utilize the data or importance for money.

Besides the tech limitations, there are others that artificial intelligence has as well. One thing is that a human still has to monitor it. If it were to crash and start relaying information that can harm someone, it needs to be recognized immediately. Another is the human factor; all the patients are human and need to be treated as such. They may have their own reasons for accepting or declining a type of treatment that AI suggests. Without human interference to stop the data from going elsewhere then, the patient may receive the treatment that they do not want. If this was for a religious reason, the medical institute could also face lawsuits. Another large factor to consider as a limitation is job reductions. Though the technology is extremely helpful, it may take away the use for some jobs or as many people in a position that used to be needed to diagnose a patient. (*Pros & Cons of Artificial Intelligence in medicine*)

**Strategy Against Limitation**

Addressing the limitations of AI diagnostics, the first being power to the computers. Generators may be used to overcome a possible power outage. Being that the event is diagnostics, this is not a major limitation since most medical facilities already have generators to support all life-saving equipment, but it is a limitation nonetheless. The major limitation that AI may have with diagnostics is that it is a type of machine learning software. It can only know whatever data we give to learn. To combat this limitation, we as humans have to retrain the system with machine learning, adding in any new and current data. Machine learning trains AI in a way similar to how the human brain works when we study. We learn new information that we store in our brains for later use. (*Embracing change: Continual learning in Deep Neural Networks: Trends in Cognitive Sciences*) Science continues to grow, and we must remember to allow our AI support to grow as well. Having doctors go over the information that the artificial intelligence system provides is one of the best ways to help against the mistakes that AI may make. Needing to have a doctor, is a limitation in itself that can be helped by providing consistent updates to the system to continue to allow the AI system to be as accurate as possible. Keeping everything updated will not only help keep things accurate but also allow a developer to consistently watch the system to help against any technical issues that could cause crashes. These strategies can all help against the limitations of AI diagnostics and help make the technology better.

**Factors in Understanding**

Understanding artificial intelligence can be a challenge. With different perspectives on the topic, some people find it to be morally wrong to use. Due to this view, they don’t believe AI can be used in diagnostics as well. These people feel that real research is needed and a doctor needs to make the decision. What they fail to understand is that this research was already taken care of and logged virtually. This is why artificial intelligence is so helpful. It allows us to save time and end up with the same results, which could be the time that saves someone’s life. The focus of understanding artificial intelligence is also one of change. People must be open to improvement since AI will change as science becomes more advanced. The advancement of AI and medical expertise are both essential in making the systems work at their best. (*Medical Diagnostic Systems Using Artificial Intelligence (AI) algorithms: Principles and perspectives*)

**Benefits and Challenges**

Just as said before, change is unavoidable when it comes to technology. Due to this, humans need to remain open-minded. This in itself can be a challenge as some people fear the unknown. There are many different people out there, and some of them embrace the power of artificial intelligence is capable while others may believe that it may cause more harm than good. This includes AI and how it is perceived and used. This in itself is both a benefit and a challenge. Change can be hard to accept in some cases, but it is a part of life. This change is what allows us to grow and become better. With artificial intelligence, change will allow it to advance. If we do not change what the AI system knows, it may become obsolete in its own right for being inaccurate. When we think of advancements in technology one example is in how we communicate with each other. Starting with house phones, pagers, large cell phones, and now pocket-sized cell phones. Communication is a huge ordeal for the success of everything in life. This lets us know technology is needed within our society and communities. (Gert T du Preez, 2002)

**Personal Goal Strategies**

Following how change needs to happen, we can use this in everyday life. For AI to advance, it needs to be retrained. As people, we study and learn. We can learn things in schools and universities as well as learn on our own. As long as we accept the change in knowledge, our minds are open to anything. Information we obtain can become invaluable. This is how new vaccines are developed. People know that as long as they have an open mind and keep train, they can learn through trial and error and utilizing information that is already known. In my personal life, this can be seen in travel. I know the roads in my own neighborhood, but while traveling to someplace new, an open mind allows me to take in new data and learn the roads and methods to my newfound destination. This allows me to save time in getting to this destination in future travels. From a personal perspective, there are a lot of things that need to be accepted, and that includes change. One example of change that everyone does accept and almost never thinks about it’s the change in the human body as we grow up. As a mom, I have witnessed this firsthand. Though I may not want my daughter to keep getting older, I must accept that it is happening. This example also shows that technology is not the only thing people must accept change in. This shows that some technology is needed in our society. (*Embracing change: Continual learning in Deep Neural Networks: Trends in Cognitive Sciences*)

***Reflection***

**Perception**

While growing up, I learned to accept things. After studying artificial intelligence, I have learned why that is so important. It has been mentioned how accepting change will help us grow, and that is true for me as well. As time goes on, technology has continued to advance, and I personally have seen that. The way we communicate has changed tremendously in the last three decades. This is one thing that helped frame my personal perception of life. Starting with having to knock on a neighbor's door, to be able to use a house phone, then starting to learn about email and then cell phones. After all that, we then started to use Bluetooth headphones and even smartwatches. Another communication tool I started using over time is video chat. Being able to see a person you are talking to really allows us to feel a better connection. Further development of that allows us to also do physical school lectures. As I grow and see how things change for the better and how new advancements allow my life to become easier, it reminds me of the importance of the acceptance of change.

**Bias**

Bias is important to consider, no matter who you are. In one way or another, everyone has a bias, even if it's an unconscious bias. Being aware of personal biases allows you to consider other options and think outside the box. With technology, this is true as well. Considering AI, if I were to create an application that could identify cat breeds, I may teach the system only cats that are in the country I reside in. There are many breeds outside the country as well that should be considered for people who don’t live in the same country. If I continued to develop this application, then when people outside the country used it, the results would be incorrect. Knowing bias allows me to know I have to add more than what I know and must gain this information elsewhere and learn new things as well as advance my own artificial intelligence system. My own personal bias could become a wall that interferes with my overall goal if I don’t keep an open mind and accept information from a diverse community.

**Influence on Computer Science**

Analyzing artificial intelligence shows some of what computer science is capable of. AI is built from the basics to advanced computer science techniques. Without this study, artificial intelligence would not exist. Learning how we have come so far in what computer science is able to accomplish also makes us wonder what else is out there. For now, we know AI is continuing to advance with things like personal assistants and things of that nature. Looking specifically at AI in diagnostics allows us to know computer science has its own important role. Diagnostics is used every day all over the world to help save people's lives and make their lives better and more manageable. All of this has been improved due to the computer science field of study, which, without it, would not be where it is today.

**Social Science Lens**

Though my personal opinion my view might not have completely changed using the social science lens to study artificial intelligence diagnostics, it definitely lets me see more about the topic than I would have in the history lens that I started with. The social science lens allows me to view technology from a perspective that helps society as a whole and not just how it can help an individual. Though each person may be an individual within a society, they all contribute in one way or another. Disruption of that will disrupt society. This being true, AI diagnostics has been able to help multiple societies throughout the world without most of the world even knowing that it is happening. Saving a life within the circle of society with artificial intelligence protects the functionality of that society. Since AI technology is fast-paced, it also helps to keep things more balanced because people can be treated more quickly.

**Interactions**

Though there could be controversy over different people's perspectives of AI technology, analyzing the role can help explain why someone may have a different perspective. By looking at different cultures and biases, we can see that people do things differently all over the world. This starts to open up opportunities for international communication. For us to develop the artificial intelligence diagnostic system we want, we must include all knowledge from all over the world and knowledge found in different cultures. Learning from different cultures and countries we are able to build a diagnostic program that can do more than just tell us what someone may have based on symptoms but also let us know what possible treatments are best for an individual. This means that the program can also take in a patient's history and analyze what would be best for not just an individual's health but also take personal cultural views into consideration for reasons like religion. Learning about the perspectives and data in different countries and cultures shows the importance of sharing and communicating with each other. Communication becomes vital for everyone everywhere so that things work out as planned.

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