

“Role of Artificial Intelligence in Medicine during Covid-19 virus Pandemic”

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Abstract: Coronavirus 19 virus led the WHO to declare it as a pandemic in view of its rapid spread across all the countries as well as its clinical severity seen in year 2020. The faster spread of virus has paved the path of new research, faster ways of diagnosis and new inventions on management of this pandemic, in more efficient way. Recent innovation by artificial intelligence (AI) and machine learning have complemented traditional epidemiological tools significantly. AI based forecasting and predictions could help public health officials and other health care workers to be prepared to deal with Covid-19 cases. Observing the capability of AI to deal with the challenges given by Covid-19 virus pandemic, it seems to be the new future of health care system. I, hereby present a review of applications of AI in the medicine in context with Covid-19 pandemic.

Keywords- Artificial intelligence (AI), Covid-19, World Health Organization (WHO), medicine, Health care system

Introduction

Development of Artificial Intelligence has led to an overall growth of humankind and its increasing efficiency is providing a state of luxury to us. Artificial Intelligence, commonly known as AI, is actually a quality of the robots and other electronic gadgets and instruments to possess human intelligence. It has revolutionized fields of engineering and science in recent times. AI-based model systems have helped improving pattern recognition of the disease spread in different geographical locations. It could also improve predictions of outbreaks in various populations and locations. Our daily lives have transformed by AI from speech and face recognition [Alaghband et al., 2020; Grover and Toghi, 2020; Sun et al., 2020] to customized targeted advertisements [Zhai et al., 2016]. Because of the latest advancements of robots, in synchronisation with Artificial Intelligence, robots are able to overtake the work of man and produce greater efficiency and are able to complete the task in a shorter span of time. AI is found to having significant role in medicine [Amisha et al, 2019]

In the current period of time, the entire world is suffering greatly with the Coronavirus Pandemic. In less than 5 months of this pandemic, 17 million people across the globe have suffered by the virus. As of 29th July 2020, 660 thousand people have lost their lives because of this virus, with almost 10 million people who have overcome this virus due to a combined effort of doctors, their own immunity and few AI specialised robots.

Currently, due to a significant increase in the number of cases daily and lockdown across the globe, the entire human community has become dependent on Artificial Intelligence for their survival. As no physical contact is permissible, the use of mobiles and laptops have become the only mode of communication, as they provide us the fastest and the easiest mode of communication, that too from sitting at the home itself. All the big industrial companies have started the Work from Home scheme through digital platforms by using various softwares. The students of schools and colleges are being taught on a digital platform so that this pandemic doesn't affect the youth of today. But now the question is, how can all this be done digitally by sitting at our homes? The very simple answer to this is: by the use of Artificial Intelligence in our day to day lives. Now the most important reason for human luxury and comfort is Artificial Intelligence, but, Artificial Intelligence is also very useful in extremely serious and critical situations, as in the Coronavirus Pandemic. The use of Artificial Intelligence is also very beneficial for doctors for the treatment and management of COVID-19. Few of these uses have been listed below:-

1. Early detection of the presence of the virus:- Due to the use of various algorithms and fast processing by the AI-based software, the presence of this virus can be detected rapidly, thus providing faster and more accurate results.
2. Easy and quick diagnosis of the virus:- Artificial Intelligence has made it very easy to develop many new management systems, especially for Corona Virus cases. This is done through useful and synchronised algorithms.

3. Tracing the individuals affected by the virus: Artificial Intelligence, due to its advancement, is now able to track the individuals that have already suffered from the virus. By keeping the track of the location of every single individual, AI is able to create "Hotspots" i.e. a place where the COVID cases are in a huge number and are increasing significantly daily, by the help of which, the government is able to inform the uninfected residents of that place to take few necessary precautions to save themselves and their families from this dangerous pandemic.
4. The delivery of medicines to the patients by drones:- Due to the serious advancements in AI, drones, one of the smallest and easy to use UAV, are being used to deliver medicines to the houses of the patients. This is primarily being done to engage in a non-contact supply of medicines from the medical store and due to the compact drones, it has become very easy to deliver the medicine right outside the infected patient's house.
5. Reducing the workload of healthcare workers:- By helping in diagnosis, early detection, tracing individuals, etc., AI has helped reducing the work of the doctors and other healthcare staff by overtaking their work. Because of this, AI in some way or the other helps the healthcare workers by preventing them from coming in physical contact with the infected patients.
6. The use of supercomputers for the development of vaccines:- Tech companies like Tencent, DiDi, and Huawei are using supercomputers for developing either a permanent cure for the virus or a vaccine to produce antibodies in humans to prevent them from this virus in future. Supercomputers are used for the same because they work faster than ordinary computers and they also provide more efficiency.
7. Apps to inform people about the COVID-19 infected cases in his/her locality:- Indian government came up with an app, namely "ArogyaSetu" to inform Indians about the number of COVID infected patients in the locality along with the exact location of the infected patient. By this, the general public is informed to take necessary precautions and stay away from the place where Coronavirus Pandemic has already struck.
8. Monitoring the treatment of COVID-19 infected patient:- By the use of Artificial Intelligence, it is would be easy to develop a platform that could automatically monitor the behaviour as well as predict the spread of the CoronaVirus in our near future. AI is capable of informing individuals on how to prevent themselves from this virus. It is also capable of informing the patient suffering from COVID-19 about the day-to-day updates.

Summary and Future Prospects- We could gather that AI plays an important role in public health and health care system. In this review I have highlighted the various AI based approaches and its uses, especially during Covid-19 virus pandemic. AI based methods are found to be useful in prediction of disease, its epidemiology, its early identification, measures to treat and stop its spread and many more. AI based predictions are dependent on input data and assumptions therefore it may not be completely accurate. Similarly AI cannot replace human intelligence but if used properly

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Biography



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