Perspectives on Business Management & Economics
Volume V • September 2021 • ISBN: 978-81-951151-3-6

ROLE OF ARTIFICIAL INTELLIGENCE IN MONITORING COVID-19 IN INDIA

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ABSTRACT

Experts and officials from all around the world have redirected their emphasis to limiting the COVID-19 pandemic and eliminating the virus since the World Health Organization (WHO) declared the novel coronavirus pandemic a health emergency of worldwide significance. Artificial intelligence (AI) is a possibly crucial tool against the COVID-19 pandemic at this crucial stage, as one of the most prominent and rising new technologies.

Artificial intelligence can be used to combat fraudulent communications and forwards on social media in this arena. Artificial Intelligence may utilise the data to forecast and locate the virus's future course of action, reducing the number of people who die as a result of it. The project aims to look into the many domains in which artificial intelligence-based technology might be utilised to monitor the Covid-19 and its harmful effects, as well as to find a solution to reduce human exposure and save as many lives as possible.

Keywords	COVID, Artificial Intelligence, Big Data, Pandemic, Healthcare System
JEL Classification	Z00
Cite this Article	Srivastava, Madhavi. (2021, September). Role of Artificial Intelligence in monitoring COVID-19 in India. In Perspectives on Business Management & Economics (Vol. V, pp. 51). Retrieved from http://www.pbme.in/papers/516.pdf
Article History	Received: July 10, 2021; Accepted: August 21, 2021; Published: September 30, 2021

INTRODUCTION

The world has faced an immense challenge in the last one and half year. Covid-19 the Global pandemic has cost so much the entire world. In the form of loss of life destructions of Economics and lowering the ease of Living it has devastated the world. While more than 170 countries are continuously putting their effort in fighting the disease the recent vaccines have proven to be some sort of relief to the world. However, there is still no solid cure of the disease which is causing so much loss of life in the world. Every sector in their own capacity is trying to make some kind of advancement in their field in order to tackle the covid-19 situation. The

communicable nature of the disease has caused social distancing in the entire population. The doctors and paramedical staff are continuously putting their effort in saving the lives of the patients in the hospital. However, their efforts are not yielding result as a number of patients is very high.

Because the twenty-first century is the century of technology, every available technology must be used to combat the disease known as covid-19. The pharmaceutical and technology industries' behemoths are figuring out how to use artificial intelligence to combat covid. Artificial intelligence can be useful in finding a treatment for an illness or lowering the disease's impact on the population. Artificial intelligence systems deal with vast amounts of data and, unlike humans, can handle a large amount of work at once. Artificial intelligence systems, unlike humans, are not prone to errors and can work continually without taking breaks.

In the last 10 years artificial intelligence has transformed various industries and has provided immense opportunities for development in many sectors. AI can analyse and predict the virus's spread, assisting in the development of a viable treatment. The real-time tracking technologies give more information about the virus and aid in the accurate assessment of the infection risk. Because this technology is critical for social and economic performance in addressing the difficulties posed by this virus, AI must be used in worldwide efforts to combat it. It assists in making day-to-day judgments without making the same mistakes. (PP Sengupta et al 2018; JA Nicholas et al 2019; E Driggin et al 2020)

Artificial intelligence is a machine so it is not prone to the disease which humans are prone to. Humans have limited capacity of handling at one task at once while artificial intelligence can work on many tasks simultaneously. Although it has been one and half year still, we are not aware of the most of the information of the virus.

LITERATURE REVIEW

A lot of research has been going in the many parts of the world in order to acquire more information about the covid-19. As covid-19 virus is mutating at a very fast pace it becomes necessary to acquire information about it and act accordingly. They help of artificial intelligence can be taken in this regard. As the treatment requires direct contact with the infected person human exposure can be fatal. Here AI induce robot can help to reduce human exposure. In some parts of the world there have been cases where many Hospitals have been using the robots for performing some tasks in the covid wards.

With lot of data being available from the last year and a half, and can be utilised to preserve knowledge about the pandemic's future course using artificial intelligence mechanisms. By integrating medical professionals with data and machine learning tools, this can be accomplished. This could lead to future solutions. We have successfully used technology through social media platforms in the twenty-first century, which is known as the "technology century." In some cases, though, these platforms send out fraudulent messages that are difficult to combat on a personal level. People become fearful as a result of such bogus messages, which leads to panic.

Artificial intelligence can be used to combat fraudulent communications and forwards on social media in this arena. Artificial Intelligence can utilise the data to forecast and locate the virus's

future course of action, reducing the number of people who die as a result of it. The study aims to look into the various domains in which artificial intelligence-based technology might be utilised to monitor the Covid-19 and its harmful effects, as well as to find a solution to reduce human exposure and save as many lives as possible.

AI IN HEALTHCARE

During the COVID-19 pandemic, artificial intelligence (AI) shown its ability to positively impact various healthcare disciplines. AI employs complex algorithms to anticipate the result of diagnosis and treatments, which can be beneficial to the system. Some of the methodologies employed in the application of this techno world known as AI include cognitive computing, deep learning, and machine learning. It is utilised to make difficult-to-solve decisions and solve difficulties, resulting in increased work efficiency.

It can focus on a wide range of healthcare topics during the COVID-19 pandemic, including illnesses, their causes, interactions, and prevention. AI is used to discover novel medicinal cures and to boost a physician's efficiency by speeding up the process. The COVID-19 patient's fate might be predicted more accurately than by humans using machine data. Artificial Intelligence is becoming a frequent component in a wide range of technical and healthcare fields, and it is expected to give a long-term solution for this platform. This system can be utilised to digitally manage numerous treatment activities involving patients during the COVID-19 pandemic.

The COVID-19 pandemic is currently wreaking havoc on people all over the world. This is a once-in-a-century event that has a direct impact on the healthcare industry and associated fields. AI has the potential to analyse the vast amounts of data created during this global crisis in an efficient manner (Malik P Amisha et. al 2019; K Seetharam et al 2019). To arrive at a meaningful conclusion, AI analyses and mines raw data. Furthermore, it analyses the data in a number of different ways (RS Loungani et al 2020; AO Ladejobi et al 2020). At this time, the most important and helpful thing to do is to keep an eye on the virus and prevent it from spreading over the world.

In these efforts the AI might aid in the development of a thorough knowledge of COVID-19.

Artificial intelligence is of much use in healthcare system. Ai can analyse facts regarding the country's transportation during the virus. This would help in creating a smooth transport system during time of emergency. AI can be a tool in analysing the ill effect of the Virus through big data. AI can be helpful in measuring the effects of the worldwide pandemic. With the insights provided to the system, Artificial intelligence can do wonders. Artificial intelligence can track and anticipate a social measure of various regions. AI can also analyse the current COVID-19 situation's development.

Because AI is based on data and can make independent decisions, it may be a superior option for the hospital during this crisis. The countries can create a mechanism that will use the data insights to track COVID-19's long-term impact. The most difficult obstacle is human exposure to the diseased. A human can become infected if he or she comes into touch with a Covid infected person. To monitor their patients, doctors and paramedical staff wear personal protective equipment (PPE). Artificial intelligence, on the other hand, can help maintain

effective COVID-19 patient supervision. It will alleviate the strain on healthcare professionals and provide respite in times of crisis.

In these times when the Indian healthcare is experiencing so much stress there arises need of tracking the whole system. With the help of an Automatic public health tracking system one can keep watch on the on-going activities in the health sector. It can track the number of beds occupied, number of beds vacant, oxygen consumption required, medicines and important drugs in pipe, number of vaccines administered or needed etc.

There is so much pressure on doctors and they are truing every way to treat the patients in maximum quantity. However, AI can here play a very significant role. AI can provide diagnosis on need when the medical emergency is not fatal and requires normal to moderate prescription. This can be done by appropriate medical data analysis throughout an emergency. (Haleem, A., Javaid, M., Singh, R. P., & Suman, R. (2021).

EFFICIENT DISEASE ASSESSMENT

Patients with COVID-19 can benefit from AI. AI can assist such people in need by managing, monitoring, diagnosing, and improving therapy outcomes. Its use contributes in increasing COVID-19 patient satisfaction by making imaging equipment more precise and faster. It provides direction, demonstration, and support during imaging and assessment.

AI and its applications assist physicians in lowering their burden. AI technology is developing and improving the process of learning about the medical industry. AI can execute measurements more consistently and faster than a human, with no interruptions.

It can scan the patient's report swiftly to update/remind the patient of an appointment and have a good influence on human life. (A Esteva et al, 2021; M Javaid et al 2020; G. Sheares 2020; Ti Liu et al 2021; MY Eleazar, S. Hosny 2020)

Artificial intelligence (AI) is transforming our lives by allowing a computer or machine to solve issues by mimicking human intelligence. Initially, AI was intended to handle simpler problems such as language recognition and image retrieval, but its reach has grown over time. AI is growing increasingly capable of doing human-like tasks. As technology progresses, it not only mimics people but does so more efficiently, swiftly, and at a lower cost in addressing difficult situations. AI has undeniably surpassed traditional analytical and clinical decision-making approaches in healthcare. It can be aided by machine learning (ML) methods, which are a subset of AI.

They can identify patterns and trends large data and improve their precision and accuracy over time as they engage with data sets, enabling people to obtain fresh insight into illness early detection, drug development, diagnostics, healthcare processes, therapy variability, and clinical care. (Jiang F, Jiang Y, Zhi H, et al.)

The medical industry is on the lookout for cutting-edge technology. This is part of an attempt to track and control the COVID-19 epidemic in this worldwide health calamity. One such instrument is artificial intelligence. This is the weapon that can be used to track the virus's spread and identify high-risk individuals. AI can also help with real-time infection control. By thoroughly assessing the patients' past data, it may also be able to anticipate mortality risk. By

offering population screening, medical assistance, notification, and infection control suggestions, AI can help us tackle this virus (Haleem A, Javaid M, Vaishya 2020; Bai HX et al 2020).

APPLICATIONS OF AI IN HEALTHCARE SYSTEM DURING COVID

Artificial intelligence can play a vital role in health care system to combat covid-19. There are many applications of AI which can be applied in the Healthcare system in the fight against covid-19. Early warning and alerts, prediction and detection of disease outbreaks, actual disease surveillance around the world, processing and analysis of propagating trends, forecasting of patients infected and virus trend, fast selection to recognise efficient medications study and evaluation of pathogens, and drug development are some of the strategies employed by AI during disease outbreaks. With AI, all of this is done at a faster rate (Dananjayan, S., & Raj, G. M. (2020).

Artificial Intelligence can aid in the early detection of cord infection and the initiation of treatment as soon as possible. This will aid in the delivery of speedier medication and the reduction of fatality rates. Artificial Intelligence can be used to track the treatment given to a patient and save the information as a record for future use. From the data insights, this can also aid in predicting the infection's future course in early cases. On a frequent basis, Artificial Intelligence can deliver updates to the patient and their attendants. Tracing the contacts of the infected individual is one of the most critical aspects of fighting covid-19.

Early trace-track and treatment is the biggest weapon which can be used efficiently by applying artificial intelligence techniques. AI can help in analysing the probable Hotspots and can also track individuals Who may have got infected or may serve infection to others. On the basis of available data Artificial Intelligence can help in projecting the peak of the cases and the mortality rate. Probably there is a huge role of artificial intelligence in manufacturing of drugs and vaccines against covid-19 and also in entire Healthcare system. The robots powered by Artificial Intelligence can help in reducing the workload of healthcare workers to a great extent. This can provide the much-needed relief to the Healthcare workers and will help in early diagnosis of the disease and treatment of the patient. The detail applications of the artificial intelligence are discussed below:

EARLY INFECTION IDENTIFICATION AND DIAGNOSIS

With patient medical history in hands AI can swiftly assess abnormal symptoms of the patients. After analysing some abnormities, it can provide "red alerts and give alarm to patients and healthcare providers (Ai T et al. 2019; Luo H et al. 2020]. AI can aid in cost-effective decision-making by allowing for speedier decision-making. Through relevant algorithms, it aids in the development of a novel diagnosis and management strategy for COVID 19 patients. Presently the medical imaging technologies such as CT scans and MRI are based on AI and can provide with efficient data of the infected body parts in few minutes which can further help in getting the right medications.

TREATMENT MONITORING

AI has the potential to provide daily patient information as well as COVID-19 pandemic response choices. AI could be utilised to build an intelligent platform for self-monitoring and assessment of viral infections. This can be useful in monitoring the state of patients infected with covid, and after monitoring their vitals, it can forecast future course of action, preventing their health from deteriorating. A neural network might be created to extract the visual features of this disorder, assisting in the right diagnosis and treatment of persons who are affected (Haleem A, et al. 2019; Biswas K, Sen P 2020; Stebbing J et al. 2020).

3 TS- TEST, TRACE AND TREAT

States like Uttar Pradesh in India have successfully defeated the virus in both waves with the help of 3Ts. The test trace and treat strategy from the government has reduced the effect of the virus on a great extent. Since the first lockdown in India, the government has announced Arogya Setu app which used AI technique and alerts people on coming in hotspot area or with infected person. AI can assist in analysing the virus's level of infection, finding clusters and hot spots, as well as successfully tracing and monitoring individual contacts. It can forecast the disease's future course and likelihood of recurrence.

CASE AND FATALITY PREDICTION

With the use of AI and statistics, case fatality and projection can be done quickly. The IIT Kanpur and its professors have anticipated that the second wave of cases in India will climax. This was accomplished with the use of artificial intelligence (AI) and data insights from India's first wave. This system can track and predict the features of the virus, as well as the risks of infection and its expected spread, using existing data, social media, and media channels. It may also be able to predict the number of positive cases and deaths in a specific area. AI can help identify the most vulnerable regions, people, and countries so that proper measures can be taken.

DRUG AND VACCINE DEVELOPMENT

Artificial intelligence (AI) can assist in the development of various treatments and drugs that are required on an emergency basis. It can be done by analysing the COVID-19 data that already exists. In various stages of drug development, artificial intelligence is used. It could be used to design and create patient-friendly pharmaceutical administration systems. When normal testing takes a lengthy time, this technique is used to speed up drug testing in real-time. As a result, this procedure, which would be impossible for a person to complete, will be significantly accelerated. (Haleem A, et al. 2019; Biswas K, Sen P 2020; Haleem A, et al. 2019). AI aids in the creation of vaccines and therapies at a much faster rate than before, as well as clinical studies during vaccine discovery. It may aid in the discovery of effective medications for the treatment of COVID-19 patients. Artificial intelligence has evolved into a useful tool for developing diagnostic tests and vaccines (Sohrabi C et al 2020).

RELIEF TO HEALTHCARE WORKERS

AI has the ability to improve future patient care and resolve more possible difficulties, reducing doctors' burden. Healthcare workers are overworked as a result of a sudden and significant increase in the number of patients during the COVID-19 epidemic. (Smeulders AW, Van Ginneken AM.) Here, AI is employed to lessen the workload of healthcare staff. It aids in early identification and cure utilising digital techniques and decision science, as well as offering the greatest training to students and clinicians on this lethal virus (Gupta R, Misra A).

DISEASES PREVENTION

AI will become increasingly important in offering better predictive and preventative healthcare in the future (Vaishya, R., Javaid, M., Khan, I. H., & Haleem, A. 2020). AI can give updated knowledge that is useful in the prevention of this disease through real-time data analysis.
It might be used to assess the likely locations of infection, the virus's spread, and the demand for beds and healthcare professionals during this crisis. AI can help prevent future viral and sickness epidemics by using previously mentored data over data that is prevalent at different times. Artificial intelligence can look at the qualities, reasons, and motivations that lead to viral spread. This technique will be critical in the future fight against new diseases and pandemics. It can be used as a prophylactic measure as well as a treatment for a wide range of ailments.

AI IN CURBING SPREAD OF MISINFORMATION

This pandemic has become an info emic as a result of the flood of knowledge. Understanding COVID-19 knowledge, awareness, and practises by utilising information from social media platforms such as Twitter, Facebook, and others can aid in the development of a plan to collect and distribute timely and accurate information in order to mitigate the effects of COVID-19. (Rashid MT, Wang D.2020; Hung M, Lauren E, Hon ES et al. 2020).

Machine learning algorithms can be used to detect trends and analyse sentiment, as well as provide information about the source of erroneous information and assist in the suppression of rumours and disinformation. (Khan R, Shrivastava P, Kapoor A, Tiwari A, Mittal A; Khan, Shrivastava P, Kapoor A, Tiwari A, Mittal A; Khan, Shrivastava P; Khan, Shrivas This would aid in disseminating accurate information to individuals during a crisis and might also serve as a source of assistance. In India's second wave of COVID, when hospitals were overburdened and bed and oxygen availability statistics were out of date. Twitter and Facebook, among other social media sites, aided in disseminating accurate information to those in need and assisting them during the crisis.

RESEARCH METHODOLOGY

Covid-19 has been a big health issue for many people, with various health professionals recommending various strategies to avoid developing the condition. This study will involve use of secondary data and gather it from a variety of research done throughout the globe. In the present study we have undertaken much previous literature in this qualitative study to evaluate the applicability of AI in COVID-19 pandemic management and control, including tracking and forecasting pandemic spread. The study also explores others aspects of AI as vaccine and

medication research and development. The goal of this research is to determine the benefits and drawbacks of AI in pandemic management and control. This research will help researchers better comprehend the possibilities of sophisticated technologies in healthcare, such as AI (Siau et al. 2002), as well as alleviate worries about AI's use in healthcare.

RESEARCH PHILOSOPHY

In the present study the researcher has used the interpretivism research philosophy. The reason behind choosing the interpretivism research philosophy is that it allowed the researcher to validate the data qualitatively without verifying it with new data. As the research is a literature review it accounts on the Artificial Intelligence's roles in COVID. According to the interpretivism research philosophy it's believed that the meaningfulness of any study's findings is based on the interpretation of the researcher. The interpretivism tries to understand the incident of the study by interpreting the results. ("What Is Interpretivism? Philosophical Doctrine")

RESEARCH APPROACH

Research approach is directly connected with the chosen research philosophy and the research method used. In the present the researchers have used inductive research method. Using an inductive technique, a researcher begins by gathering appropriate data on their area of discussion. When some significant volume of data has been gathered, the researcher will step backward and acquire a glimpse of their data before continuing with data collection. During this point, the researcher is investigating for trends in the data and striving to establish an explanation for those trends. An inductive approach begins with a set of observations and then moves from those specific occurrences towards a more common class of assertions about those situations. (DeCarlo)

METHODOLOGICAL CHOICE

The onion technique in their research allowed researcher to use both types of methods. Research onion technique gives researchers freedom to employ qualitative or quantitative methods. In the present study the researcher has used qualitative method. As the researcher wanted to have a glance at different COVID related papers and observe the patterns in relation with Artificial Intelligence. Qualitative research is multimethod and takes an interpretative, holistic perspective to its topic area. Qualitative researchers, on the other hand, look at things as they are in the real world, trying to understand or interpret occurrences in order to understand how people assign to them (Denzin, N., & Lincoln. Y. (1994).

RESEARCH STRATEGY

In order to perform the research, the researcher first collected different paper suggested to the artificial Intelligence and the covid-19. The research took a glance at the paper relating to use of artificial intelligence in Healthcare, effective disease assessment with the help of artificial intelligence, applications of artificial intelligence in Healthcare system during covid-19 infection of identification and diagnosis case and fatality rate prediction drug and vaccine development

etc. Researcher observes the Trends and patterns in the paper and prepared the review of the research.

TIME HORIZON

Researcher use cross-sectional method of the data collection in the study. As a data relating to the covid-19 India difficult regions were collected from different sources within few days' research thought it appropriate to name the method as cross-sectional method.

TOOLS AND TECHNIQUES

Research and collected data in the form of secondary sources. The literatures articles journals related to the covid-19 India artificial intelligence role in combating the COVID-19 collected and they were reviewed in order to observe the Trends and patterns. Then the researcher prepares the paper according to the observed trends.

RECOMMENDATIONS

Despite significant progress in compacting COVID-19 utilising new technologies, more of these innovations are needed for detecting, analysing, assessing, screening, observing, locating, monitoring, and expanding the scope of COVID-19 data. AI models and applications work better when they are available and accessible. Future research should focus on improving current technology, and a strong analytically intelligent framework for early COVID-19 differential diagnosis is urgently required.

In addition, future studies should concentrate on the ethical framework and permissible use of developing technologies in combating the COVID-19 pandemic while maintaining data security and privacy. (Mbunge, E., Akinnuwesi, B., Fashoto, S. G., Metfula, A. S., & Mashwama, P. (2021).

The study emphasises the need for improved data sharing protocols in the field of health, while maintaining data privacy and security aspects, due to the sensitivity of information in the sector. In this aspect, AI processes combined with data-driven technologies may and should be encouraged because they provide larger datasets that are more predictive and aid in illness detection.

Health standards must be simplified to allow devices to connect without risking data security or blocking data monitoring. As in the case of a pandemic, the technological transformation will lead to increasing use of computer systems and improved management methods, contributing to its important place in urban health policy (Surya, L., & Yarlagadda, R. T. (2020). AI approaches may also be utilised to offer a clear image of recovery rates, healthcare accessibility and availability, and gap detection. In this extremely dynamic environment, AI can deliver the most up-to-date information on developing research in diagnosis, treatment, symptom spectrum, and therapeutic results, which will aid physicians in real-world scenarios and the general public in overcoming dread and panic. (Samuel J, Ali GG, Rahman M, Esawi E, Samuel Y 2020).

CONCLUSION

Artificial Intelligence (AI) is an emerging and helpful technology for detecting early coronavirus infections and monitoring the state of affected individuals. By building helpful algorithms, it can considerably enhance treatment uniformity and decision-making. It is also beneficial to aid viral research by evaluating the existing data. AI can assist in the creation of effective treatment regimens, preventative initiatives, as well as medication and vaccine development (Vaishya, R., Javaid, M., Khan, I. H., & Haleem, A. (2020). In the present study through qualitative data method and use of secondary data a lot of information has been accessed. This has given insights on the various application of AI in healthcare system especially in combating COVID in India.

In COVID-19 diagnosis and drug discovery, AI was proven to be on level with, if not better than, human specialists. Before AI takes the lead in diagnostics and other fields, we need more datasets for training AI models. This is context with the legal framework and ethical concerns for data sharing. The availability and exchange of clinical and epidemiological data, computing resources, scale, security, and moral considerations are all hurdles in leveraging AI to its maximum potential in the present context (Arora, N., Banerjee, A. K., & Narasu, M. L. (2020). AI is beneficial not only in the treatment of COVID-19 afflicted patients, but also in the correct monitoring of their health. It can monitor the COVID-19 outbreak at many scales, including molecular and epidemiological applications.

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