Uses Of Artificial Intelligence To Fight Against Corona-Virus

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Motivation

Due to the rapid spread of the Corona-virus, we are in the middle of a global pandemic (COVID-19).The stress and pressures of combating the spread of the dangerous virus are being addressed by countless people around the world.Education is being hampered due to this condition.Besides normal human activities are being disrupted.In an attempt to stop any infected outsiders from entering their land, many nations have started to close their borders.People are becoming physically and mentally depressed.With more than 11,475,571 confirmed cases and more than 1,193,909 deaths worldwide and more than 9,316,297 cases and 235,159 deaths in the United States, and officially labeling the virus as a pandemic by the World Health Organization (WHO), the global health community relies on new tools and technologies to stay ahead of the pandemic.Artificial intelligence (AI) has been widely used in various ways in our daily lives.AI has also helped to deal with the Corona-virus disease (COVID-19) pandemic that has occurred around the globe.Every step of the way, from detecting the first Corona-virus outbreak to measuring the economic impact of the disease, artificial intelligence (AI) has proven particularly valuable.While it's probably too late for the new technology to play a major role in the current epidemic, the next outbreaks are expected.AI is good at combining data mounds to find links that make it easier to determine what kinds of therapies might work or which experiments to follow next.In a range of fields, AI has been successful, including fraud detection, computer vision, internet advertising, robotics, automatic drivers, etc. With its success in fields such as disease diagnosis, treatment, patient monitoring, drug discovery, epidemiology, etc., there is a strong hope that Artificial Intelligence can currently be a vibrant research area to address the challenges facing human beings.AI is argued to be key to supporting covid-19 clinical and academic studies and future crises.Since Artificial Intelligence has already taken the development of the medical science further,I also believe that one day soon scientists will be able to find a permanent solution to get rid of this virus with the help of medical science and artificial intelligence combined.And that is the reason why I want undertake research in this field.

Research Proposal

Introduction

Colloquially known as Corona-virus, the SARS-CoV-2 that causes the COVID-19 is a contagious virus that belongs to the family of Coronaviridae.Symptoms such as cough, fever, fatigue, and shortness of breath are caused by the illness. The primary source of the virus is still under debate, but studies on the genome sequence of the virus have determined that it belongs to the Corona-virus family of β-CoV genera that host bats and rodents.Through air and physical contact, the virus transmits and penetrates raspitor cells by binding to angiotensin-converting enzyme 2 (ACE2). Shortness of breath, fever, cough, loss of smell and taste, headache and muscle ache are the most common symptoms of the virus.In December 2019, SARS-CoV-2 was first reported to be observed in Wuhan city, China. It has since spread around the world on an ongoing basis. As the virus progresses, in any aspect of human life, it creates a lot of difficulties and new problems emerge as time goes by. New techniques are being developed every day to solve these rapidly emerging issues.The study and development of approaches that imitate human intelligence is Artificial Intelligence. In a variety of fields, the method has been successful, including fraud detection, computer vision, online advertising, robotics, automatic drivers, etc. With its success in areas such as diagnosis of diseases, treatment, patient monitoring, discovery of drugs, epidemiology, etc,there is a strong hope that Artificial Intelligence can be a vibrant research field to tackle the challenges facing human beings at present.It is argued that AI will be key to supporting covid-19 and future crises in clinical and academic studies. China, for instance, initiated a set of actions against the spread of the virus at the beginning of the outbreak, by adopting a set of AI-based technologies.In this effort, ideas such as the use of facial recognition cameras to track infected individuals, drones to disinfect places[5], robots to

deliver food and medications, etc. were explored.There are various application fields for which AI approaches to the management of the effects of the disease are adopted. Based on the applications, we try to organize the research. Clinical applications, covid-19 processing related images, pharmaceutical studies and epidemiology are included in the apps.We also organize the analysis on the basis of the AI strategies they have adopted. The main categorization is based on applications, but the research is subdivided on the basis of the AI approaches they have employed for the same application. Deep learning, machine learning, Artificial Neural Networks, and evolutionary algorithms are examples of AI approaches.Testing to detect positive cases of covid-19 currently relies heavily on Reverse Transcription-Polymerase Chain Reaction (RT-PCR), which takes time and has a false-negative error. Therefore, it is a matter of importance to develop new approaches to detect patients at a faster rate with greater precision.CT or X-Ray images, which require more easily accessible equipment, are one way of detecting patients. You can detect the patients by processing these images even before they have developed symptoms such as fever or coughing. There are three stages in the image-based diagnosis of covid-19, i.e. 1) pre-scan preparation, 2) image acquisition, and 3) disease diagnosis.When analyzing these images, image processing and AI strategies may help.Mathematical modeling has been used to predict the behavior of epidemics for several years. This helps policymakers to take appropriate action to curb the pandemic. In modeling complex systems, AI approaches have proven to be very effective.Many studies have targeted the role of modeling the conduct of the pandemic since the beginning of the pandemic. A successful field of research in the area was not only the modeling of the epidemic, but also the development of policies to curb it.For example, in countries like Taiwan, the national medical database has been infused with immigration and customs databases to create policies based on people's symptoms and travel history.Since the beginning of the outbreak, the use of AI based approaches to drug development has attracted attention. AI's ability to discover new molecules has been used extensively in research.AI approaches have long been used in the development of the system of diagnosis and treatment. Now for this field of science, this pandemic has created a new challenge. It can be very helpful to develop intelligent systems that can assist practitioners in diagnosing, monitoring, predicting patient conditions and offering treatment measures to assist health systems already under pressure.

Literature Review

New techniques are being developed every day to solve these rapidly emerging issues.The study and development of approaches that imitate human intelligence is Artificial Intelligence.With its success in areas such as diagnosis of diseases, treatment, patient monitoring, discovery of drugs, epidemiology, etc,there is a strong hope that Artificial Intelligence can be a vibrant research field to tackle the challenges facing human beings at present.It is argued that AI will be key to supporting covid-19 and future crises in clinical and academic studies.Therefore, it is a matter of importance to develop new approaches to detect patients at a faster rate with greater precision.CT or X-Ray images, which require more easily accessible equipment, are one way of detecting patients.In modeling complex systems, AI approaches have proven to be very effective.Many studies have targeted the role of modeling the conduct of the pandemic since the beginning of the pandemic.A successful field of research in the area was not only the modeling of the epidemic, but also the development of policies to curb it.For example, in countries like Taiwan, the national medical database has been infused with immigration and customs databases to create policies based on people's symptoms and travel history.Since the beginning of the outbreak, the use of AI based approaches to drug development has attracted attention.It is an applied research.We all know that applied research is undertaken to solve existing problem.Covid-19 is an existing problem which is needed to be solved as soon as possible.In this paper I have followed the current status of all AI applications which are being used to find the suitable solution for getting rid of this virus.

Objective

Main Objective : To give an overview of current status of AI applications and motivate researchers in harnessing AI potentials in the fight against Corona-virus.

Sub Objective-1 : To identify, track and forecast outbreaks.

Type : Explanatory.

The better the virus can be tracked, the better we can fight it. AI can learn to detect an outbreak by

analyzing news reports, social media platforms and government documents. The Canadian start-up BlueDot provides exactly the service to track infectious disease risks by using AI.In reality, several days before the Centers for Disease Control and Prevention or the World Health Organization issued their public threat, the BlueDot AI warned of the threat.

Sub Objective-2 : To help diagnose the virus.

Type : Explanatory.

A Corona-virus AI solution has been launched by artificial intelligence company Infervision to help front-line healthcare workers effectively detect and monitor the disease. With the increased workload created by the virus, imaging departments in health care facilities are being taxed. This solution enhances the speed of CT diagnosis.

Sub Objective-3 : To process healthcare claims.

Type : Explanatory.

It is not only the clinical operations of healthcare systems that are being taxed as they deal with the surge of patients, but also the business and administrative divisions. A blockchain platform provided by Ant Financial helps speed up the processing of claims and reduces the amount of face-to-face interaction between patients and staff at the hospital.

Sub Objective-4 : To help delivering medical supplies.

Type : Explanatory.

The delivery of drones is one of the safest and quickest ways to get medical supplies where they need to go during a disease outbreak. Terra Drone uses its unmanned aerial vehicles to transport medical samples and minimally risky quarantine materials between the disease control center of Xinchang County and the People's Hospital.

Sub Objective-5 : To identify infected individuals.

Type : Explanatory.

While certainly a controversial use of technology and AI, China’s sophisticated surveillance system used facial recognition technology and temperature detection software from Sense-Time to identify people who might have a fever and be more likely to have the virus. Similar technology powers "smart helmets" used by officials in Sichuan province to identify people with fevers.A monitoring system called the Health Code, which uses big data, has also been developed by the Chinese government to identify and evaluate the risk of each person based on their travel history, how much time they have spent in virus hotspots, and potential exposure to people carrying the virus.A color code (red, yellow, or green) is assigned to citizens that they can access via the popular WeChat or Alipay apps to indicate whether they should be publicly quarantined or permitted.

Main Research Question : How artificial intelligence can be used to fight against Corona-virus?

Sub question-1 : Can AI help track and predict the spread of the infection?

Sub question-2 : Can AI help in making diagnoses and prognoses?

Sub question-3 : Can it be used in the search for treatments and a vaccine?

Sub question-4 : Can it be used for social control?

Proposed Research Methodology

In this research explanatory method will be used.For a problem that has not been well researched before, explanatory research is carried out, requires priorities, generates operational definitions and provides a better-researched model.Actually, explanatory research is a form of research design that focuses on explaining the aspects of your research. The researcher starts with a general idea and uses research as a tool that could lead to the topics being addressed in the future.For using this method the understanding of a researcher will be increased on how AI can be improved to cure the infected Covid-19 patient and to protect healthy people from Corona-virus.It does not provide conclusive results like new discovery of a 100% effective vaccine or any modern medical technology to cure Covid-19 because of lack of it's statistical strength, but it makes the determine on how can we prevent human bodies from connecting the virus and why the virus is still spreading.Secondary sources like published literature or data on this topic related are commonly used in this research.Care ought to be taken to choose a scope of fair minded sources to give a wide and balanced comprehensive on how we can use AI effective to fight against Corona-virus.Exp-Research can be very advantageous in directing subsequent research approaches. A great understanding of the subject allows the researcher to hone subsequent research questions and can greatly increase the usefulness of a study's conclusions.This exploration is likewise exceptionally valuable in deciding the best way to deal with accomplish a specialist's goal.Also it has been noticed that exploratory research is the examination, which shapes the foundation for different inquiries about, it is the building obstruct for alternate looks into ,it is the building block for the other researchers.It can even help in deciding the exploration configuration, testing philosophy and information gathering strategy.As Covid-19 is very much new to us the research which has done till now are not sufficient.This research allows the researcher to tackle such problems where no or less research has been done on discovering new vaccines or technology for curing the virus.Inside explanatory research method we will use some sub methods include literature searches, depth interviews, focus groups, and case analysis.The Explanatory Research enables the researcher to provide in-depth insight into a particular topic, which gives birth to more topics and gives researchers more opportunities to study new things and to question new things.The in-depth study of subjects creates a cycle and the subject's critical thinking/study generates more questions, leading to more ways for researchers to study more things related to that topic.Explanatory research is a form of research that is a pillar of other researchers. One should always conduct explanatory research first before initiating work for your next research, because without it, the study would be incomplete and not as efficient.

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