



IJCRR

Section: Healthcare

ISI Impact Factor
(2019-20): 1.628

IC Value (2019): 90.81

SJIF (2020) = 7.893



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Perspectives of Using Artificial Intelligence in Preventing and Regulating COVID-19: A Letter to the Editor

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It is a pleasure writing a Letter to the Editor for the published article: **Rukmani P, Sarobin VRM, Jasmine GS, Anbarasi LJ, Mishra P. Usage of Artificial Intelligence to Prevent and Regulate COVID-19. Int J Cur Res Rev. 2020;13(6):64-67.**

Although similar work has been done before in many health care institutes elsewhere, data indeed differs from centre to centre. Today, AI technologies and tools play a key role in every aspect of the COVID-19 crisis response:

1. Understanding the virus and accelerating medical research on drugs and treatments
2. Detecting and diagnosing the virus, and predicting its evolution
3. Assisting in preventing or slowing the virus' spread through surveillance and contact tracing
4. Responding to the health crisis through personalized information and learning
5. Monitoring the recovery and improving early warning tools.

The COVID-19 pandemic poses several challenges to the Artificial Intelligence (AI) Community. Among these challenges are "Can AI help track and predict the spread of the infection?", "Can AI help in making diagnoses and prognoses?", "Can it be used in the search for treatments and a vaccine?" and "Can it be used for social control?"

Effective AI can either replicate what humans can do faster and more consistently (look at CCTV cameras, detect faces, read CT scans and identify 'findings' of pneumonia that radiologists can otherwise also find) or these systems can do things that humans can't do (such as rapidly comb through thousands of chemical compounds to identify promising drug candidates). As the disease spreads, we see medical researchers around the world rushing to make sense of available data facing the need to try to complete reliable analysis in a timeframe to be useful to others.

Using AI to help detect, diagnose, and prevent the spread of the coronavirus. AI can also be employed to help detect, diagnose, and prevent the spread of the virus. Algorithms that identify patterns and anomalies are already working to detect and predict the spread of COVID-19, while image recognition systems are speeding up medical diagnosis. For example, AI-powered early warning systems can help detect epidemiological patterns by mining mainstream news, online content, and other information channels in multiple languages to provide early warnings, which can complement syndromic surveillance and other healthcare networks and data flows (e.g. WHO Early Warning System, Bluedot).

AI tools can help identify virus transmission chains and monitor broader economic impacts. In several cases, AI technologies have demonstrated their potential to infer epidemiological data more rapidly than traditional reporting of health data. Institutions such as Johns Hopkins University and the OECD have also made available interactive dashboards that track the virus's spread through live news and real-time data on confirmed coronavirus cases, recoveries, and deaths.

Rapid diagnosis is a key to limit contagion and understand the disease spread. Applied to images and symptom data, AI could help to rapidly diagnose COVID-19 cases. Attention must be given to collecting data representative of the whole population to ensure scalability and accuracy.

This research identified the various apps used by different countries for controlling and identifying the COVID-19 pandemic and also found that different methodologies used for analyzing, predicting, and classifying the COVID-19 pandemic.

AI-based triage systems can help in reducing the work burden of medical staff and healthcare workers by automating several processes such as imparting training to practitioners, determination of the mode of treatment and care by analyzing clinical data using pattern recognition approaches, digitalization of patient's reports, and also by offering solutions that minimize their contact with the patients. AI in telemedicine can also be used to eliminate the need for frequent and unnecessary hospital visits by distant monitoring of cases and recording of patient's data in asymptomatic cases or patients with mild symptoms. AI-based medical chatbots can also be used for consultations, thereby reducing the physical crowding of hospitals as well as the spread of infection and thus prevent weighing down of efficient operation of critical care services

This research required for the future AI was found to be on par with and even more accurate than human experts in COVID-19 diagnosis and drug discovery. We need bigger datasets for training AI models and a legal framework and ethical considerations for sharing data before AI takes the forefront in diagnosis and other areas. Several bottlenecks in harnessing AI to its full potential in the current scenario are availability and sharing of clinical and epidemiological data, computational resources, scalability, privacy, and ethical concerns. As a result of a lack of data, noisy social media and outlier data, big data hubris, and algorithmic dynamics, AI forecasts of the spread of COVID-19 are not yet very accurate or reliable.

It also seems that comparatively less effort is on using AI for very early diagnostic purposes, for instance, in identifying whether someone is infected before it shows up in X-rays or CT scans, or on finding data-driven diagnostics that have less contamination risk.

Data is central to whether AI will be an effective tool against future epidemics and pandemics. The fear is that public health concerns would trump data privacy concerns. Mission creep may occur, with governments continuing the extraordinary surveillance of their citizens long after the pandemic is over. Thus, concerns about the erosion of data privacy are justified.

I would like to thank the authors for their efforts to present a few techniques followed by various researchers; accuracy, sensitivity, recall achieved by the methodologies have been presented.