

CENTRE FOR JOINT WARFARE STUDIES



CENJOWS

CHINA: LEVERAGING TECHNOLOGY FOR COVID-19 CONTROL

China: Employment of Technology for COVID-19 Control.

1. A case study of China's high-technology systems in the fight against COVID-19 has been published on 29 Mar 2020¹. The report elaborates how china is managing to win the war against COVID-19 using advanced technologies. The report has taken a note of the fact that, China was the origin of the novel corona virus spread. The virus infected around 80,000 people and killed more than 3,000. In the beginning, the outbreak was massive, but in recent weeks, China has managed to contain it.
2. China has a network of more than 200 million video surveillance cameras distributed around the country. Apart from these, China also installed biometric scanners in the doorway of residential complexes. When a person decides to leave his apartment, he has to scan his face as a sort of registration. From then on, the Intelligent System processing the data knows that the person is outside and can track his whereabouts via the extensive video surveillance system. Central databases store all of this information, machine learning algorithms and big data analytics calculate the potential social interactions of the person. The central database also gathers data from additional sources. One of these is the WeChat app which is used by about one billion people monthly just in China. The app conveniently combines localisation, social media, chats

¹ <https://towardsdatascience.com/how-china-nailed-the-coronavirus-using-technology-77703dc94a37>

² <https://www.mygov.in/aarogya-setu-app/>

and e-wallets into one system. The Case Study has identified many advantages of this system.

3. The first, advantage is that payments take place using contactless virtual cards and without exchanging real money. This lack of physical exchange automatically reduces the spread of the virus. The second advantage is the localisation feature which provides accurate geolocation of the individual. Whereas the surveillance cameras have a limited reach, the location provided by WeChat will give the system precise information regarding the whereabouts of the person. If a person comes in close contact with someone infected with the virus, the system can immediately alert him and get him to avoid that person. This feature is akin to India's Arogya Setu App released only recently².

4. The third advantage is that since the e-wallet includes information about shops visited together with the purchases, the two can be combined. From the location of the shop, one can deduce if a person shopping might have contracted the virus because a few minutes earlier, an infected person was shopping in that same shop. The purchases, on the other hand, might provide information regarding the wellbeing of the individual. An Artificial Intelligence (AI) system can easily infer that if certain items, such as medicines are purchased, then the person or someone close to him is most probably ill. The chats on WeChat further corroborate this hypothesis since they are automatically analysed using the AI. The system then flags the person as a potential case, and a medical team visits him to perform specific tests. The fourth advantage is the social media element which is essential to identify the social circle of the person and reach to them in case of an infection. The system is so sophisticated that it can list most of the people who interacted with an infected person in the previous two weeks. The government then imposes self- quarantine for at least fourteen days on these people.

5. The study found that every citizen also gets an automatic Health code which can be red, amber or green. This coding determines the mobility of the person. A green colour means that the person is free to roam unrestricted. People who just returned from abroad or might have been in contact with an infected person have a yellow code, and their movement is restricted. Those who are probably infected fall under the red category and they have to stay in quarantine. All flights originated from infected areas are manually screened. At the entrance of commercial buildings, employees check the temperature of people and lodge a report if fever is detected. The idea of the Chinese government is to identify hotspots before they get out of control. The system is considered by many as unconventional and verging on the extreme, but it seems to be giving good results. For sure, it is the highest technology epidemic control ever created in the history of the world. There are various issues with the system; the most obvious is the fact that people are sacrificing their privacy. It would definitely need to be tweaked. In the end, no system is perfect and reaching a balance is very difficult. Thus we have to ask ourselves what length we are ready to go to save further lives. As research details emerge, the data pool grows exponentially, beyond the capacity of human intelligence alone to handle. AI is adept at identifying patterns from big data, and this piece will elucidate how it has become one of humanity's ace cards in handling this crisis.

6. Advancements in AI application such as natural language processing, speech recognition, data analytics, machine learning, deep learning, and others such as chatbots and facial recognition have not only been utilized for diagnosis but also for contact tracing and vaccine development. AI has no doubt aided the control of the COVID-19 pandemic

and helped to curb its worst effects³. Thus several noticeable AI applications employed for tackling the pandemic could be summarised as: Disease Surveillance AI; Virtual Healthcare Assistants (Chatbots; Diagnostic AI; Facial Recognition and Fever Detector AI; Intelligent Drones and Robots; Curative Research AI and Finally Information Verification AI⁴. Most important application of the AI has been that it has improved diagnostic time in the COVID-19 crisis through technology such as that developed by LinkingMed, a Beijing- based oncology data platform and medical data analysis company. Pneumonia, a common complication of COVID-19 infection, can now be diagnosed from analysis of a CT scan in less than sixty seconds with accuracy as high as 92% and a recall rate of 97% on test data sets. This was made possible by an open-source AI model that analyzed CT images and not only identified lesions but also quantified in terms of number, volume and proportion. This platform, novel in China, was powered by Paddle, Baidu's open-source deep learning platform⁴.

7. While India along with other countries across the world continue to grapple with the spread of COVID-19, a lot is being done especially by the healthcare workers, as well as the complementary efforts of AI technology to supplement their endeavours in the above listed ways. As the AI technology partners with other sectors for solutions, the light at the end of this tunnel shines brighter, creating the much-needed hope the world needs in these uncertain times⁵. In the Indian context, "Arogya Setu" App is also a good initiative and is likely to facilitate a better management of this epidemic in India.

³ **Samer Obeidat, *Entrepreneur Middle East*, dt 30 March 2020, "How Artificial Intelligence Is Helping FightThe COVID-19 Pandemic"; <https://www.entrepreneur.com/article/348368>**

⁴ ***ibid***

⁵***ibid***