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LETTER TO THE EDITOR

The Artificial Intelligence (AI) during the COVID-19 Pandemic

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Dear Editor

The coronavirus disease 2019 (COVID-19) pandemic is the first global public health crisis of the twenty-first century. Furthermore, currently, a variety of AI-powered initiatives based on data science, "machine learning," or "big data," are being employed in a variety of disciplines to forecast, explain, and manage the various scenarios produced by the health issue (Darvazeh et al., 2020). Healthcare delivery involves using emerging technologies such as Artificial Intelligence (AI), the internet of things (IoT), big data, and machine learning to combat new diseases. However, developing countries still face a significant digital gap, and Sub-Saharan Africa, the world's poorest region, faces a challenging issue, contributing less than 1% of global digital knowledge output. The use of algorithms, data, and statistics in computers to discern patterns and forecast outcomes is known as Artificial Intelligence (AI). Machine Learning (ML), Natural Language Processing (NLP), and Computer

Vision are critical applications of current AI that rely on pattern identification and prediction. However, the model is as accurate as a human grading system when making predictions. In addition, it can scale up to examine a more significant number of papers in minutes rather than months (Darvazeh et al., 2020). Since the COVID-19 outbreak in December 2019, there has been a rush to deploy AI to fight against the virus's propagation. AI can assist in tracking and predicting the spread of an infection, making diagnoses and prognoses, and searching for cures and vaccines. It can also be used for social control by isolating diseased individuals, monitoring, and enforcing compliance with lockdown measures. In terms of monitoring, AI combined with testing may be able to assist poorer countries in reducing limitations and lockdowns. In addition, AI can aid in discovering a vaccine in underdeveloped nations,

notably those in Africa, where AI research and development is behind.

Machine learning-based technologies are playing an essential part in the COVID-19 pandemic response. Experts use machine learning to research the virus, evaluate new remedies, diagnose patients, assess public health implications, etc. Artificial Intelligence helps fight the COVID-19 pandemic (Kumar et al., 2020). Several research efforts utilize Artificial Intelligence to identify medications initially intended to combat different diseases but could now repurpose to fight the coronavirus. In the context of the pandemic, AI is being used to deliver outcomes in three areas: viral Research and medicine development; administration of services and resources at healthcare facilities; and data analysis to support public policy decisions aimed at managing the crisis, such as quarantine measures (BBVA, 2020). Changes in three features – levels of the liver enzyme alanine aminotransferase (ALT), reported myalgia, and hemoglobin levels – were determined to be the most reliable predictors of eventual, severe disease, according to the AI tool. In addition, the team claimed to predict the risk of ARDS with up to 80% accuracy using a combination of indicators (Health Europa, 2020). During the COVID-19 epidemic, there were around seven significant applications of AI (Vaishya et al., 2020).

- **Disease Surveillance AI:** Surveillance is essential when dealing with an infectious condition like COVID-19. The virus has spread worldwide because of human activity, particularly migration. Blue Dot, based in Canada, has used machine learning and natural language processing to track, recognize, and report the virus's spread faster than the WHO and the US Centers for Disease Control and Prevention (CDC) (Obeidat, 2020).
- **Virtual Healthcare Assistants (CHATBOTS):** The high number of COVID-19 cases has shown that healthcare systems and response measures can be overwhelmed. AI has built a multilingual virtual healthcare agent that can answer questions about COVID-19, provide reliable information and clear guidelines, recommend protection measures, check and

monitor symptoms, and advise individuals what to do (Obeidat, 2020).

- **Diagnostic AI:** With an immediate diagnosis and remedial measures such as quarantine to prevent the infection from spreading further. Due to the high volume of cases, there is a relative shortage of clinical knowledge required to evaluate diagnostic results, slowing the speedy diagnosis. Through technologies developed by Linking Med, a Beijing-based oncology data platform and medical data analysis company, AI has increased diagnostic time in the COVID-19 crisis. Pneumonia, a significant complication of COVID-19 infection, may now be detected in less than 60 seconds using test data sets; CT scan analysis had 92 percent accuracy and a 97 percent recall rate. It was made possible by an open-source AI model that examined CT scans and quantified lesions in terms of number, volume, and proportion (Obeidat, 2020).
- **Facial Recognition and Fever Detector AI:** For a long time, thermal cameras have been used to detect persons who have a fever. The technology's disadvantage is that it requires a human operator. Cameras with AI-based multisensory technology have now been installed in airports, hospitals, and nursing homes, among other places. Individuals with fever are immediately detected, and the system watches their movements, recognizes their features, and detects whether they are wearing a facemask (Obeidat, 2020).
- **Intelligent Drones & Robots:** Due to the rigorous social distancing measures required to prevent the virus's transmission, the public deployment of drones and robots has accelerated. Some drones are used to track people who do not wear facemasks in public to ensure compliance. In contrast, others intended to disseminate information to wider audiences and disinfect public spaces. The employment of robots for food and drug delivery has also boosted patient care while posing no risk to healthcare staff. Robots

have also taken over room cleaning and sterilization in isolation wards (Obeidat, 2020).

- **Curative Research AI:** The lack of a viable cure for the virus has been a concern for scientists. So they were the first to disclose an AI-designed medicinal compound that had gone through human trials earlier this year. Compared to the five-year average time it takes standard research methods, the algorithm only took a year to construct the molecular structure. Similarly, AI can help lead the charge in developing antibodies and vaccines for the novel coronavirus, either from scratch or through medication repurposing (Obeidat, 2020).
- **Information Verification AI:** The pandemic's uncertainty has unavoidably led to the spread of misinformation on social media platforms. While there has been no quantitative evaluation of how much misinformation is already out there, it is unquestionably a large quantity. Conspiracy theories, phishing, misinformation, and ransomware are all rising, and tech titans like Google and Facebook are fighting back. When you search for coronavirus/COVID-19, you will get an alert indication and connections to reliable sources of information. On the other hand, YouTube provides consumers with direct access to the WHO and other reputable organizations for information. Misleading videos are looked for and removed as soon as they are posted (Obeidat, 2020).

Healthcare organizations urgently require decision-making systems to deal with this virus and to assist them in receiving appropriate recommendations in real-time to prevent its spread. AI is capable of accurately simulating human Intelligence. It could also help researchers better understand COVID-19 and suggest vaccine development. This data-driven technology is used to accurately assess, analyze, predict, and track current and possible future patients. The main applications are used to maintain track of instances that have been confirmed, recovered, or died.

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