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Artificial Intelligence in COVID-19 Pandemic Management and Control

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TREO Talk Paper

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Abstract

Since the World Health Organization (WHO) announced that the new coronavirus pandemic constitutes a public health emergency of international concern, experts and policymakers from all over the world have shifted their focuses to containing the COVID-19 pandemic and to eradicating the virus. As one of the most popular and emerging new technologies, artificial intelligence (AI) is a potentially vital tool against the COVID-19 pandemic at this critical moment (Naudé 2020). AI and other data analysis tools have been playing an indelible role since humankind began to address the COVID-19 pandemic. AI currently includes natural language processing, computer vision applications, and machine learning, as well as recognition and prediction using big data-based models (Naudé 2020; Siau & Wang 2018). These functions of AI are widely used in tracking and predicting pandemic situations, diagnosing diseases, identifying contacts, optimizing pandemic prevention strategies, and developing vaccines and drugs (Statucki, Howard, Ackerman, & Kuhn 2020). At present, the pandemic situation is still prevalent in many countries in the world. Monitoring, diagnosing, and developing drugs and vaccines are critical. AI can help to make these processes more efficient and effective. AI still faces many challenges and cannot completely solve all problems (Wang & Siau 2019). For example, it cannot replace the human brain, doctors, nurses, and medical experts when the outbreak requires rapid measures. However, we need to explore and develop AI capabilities for pandemic prevention and control (Marr 2020).

In this qualitative research, we will conduct multiple case studies to investigate the applications of AI in COVID-19 pandemic management and control, including tracking and predicting the spread of the pandemic as well as research and development of vaccines and drugs. This research will conduct interviews and collect data from multiple countries on various continents. This study aims to identify the advantages and constraints of AI in pandemic management and control. This study will contribute to a better understanding of the potential of advanced technologies such as AI in healthcare (Siau *et al.* 2002) and alleviating the concerns of using AI (e.g., ethical issues) in healthcare (Siau & Wang 2020).

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