



COMMENTARY

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Clinical Characteristics of Omicron Pandemic in ARIMA Statistics

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Description

Since November 2021, Omicron variants have spread rapidly around the world. Variant B.1.1.529 was first reported by WHO in South Africa on 24 November 2021. The World Health Organization (WHO) announced his SARS-CoV-2 variant Omicron (B.1.1.529) on 26 November 2021. As a result, many countries have enacted various restrictions to prevent the spread of Omicron variants.

As of 14 February 2022, WHO has reported a total of 416,614,051 confirmed cases of his COVID-19, with 5,844,097 deaths? It is estimated that the R0 of Omicron variants can be as high as 10. Therefore, it is important to predict trends in the COVID-19 epidemic using predictive models. This helps governments and relevant authorities to take effective steps to respond to advance payments. Time series prediction models play an important role in disease surveillance. Providing early warning information to government officials requires accurate forecast results for COVID-19 prevention and control.

Numerous mathematical models, including traditional time series models and machine learning models, have been applied to predict the incidence of COVID-19. Among traditional time series models in particular, the ARIMA time series model is most widely used to predict the incidence of COVID-19. We used the ARIMA model to estimate the overall prevalence of his COVID-19 in three European countries. The results will help policy makers and public health officials wisely allocate healthcare resources. We use a modified ARIMA model to predict his COVID-19 pandemic in Alberta, Canada. We used the ARIMA model to analyze the effectiveness of epidemiological surveillance for COVID-19. Application of the ARIMA model to predict the global spread of COVID-19.

They employed the ARIMA model to predict the short-term course of the accelerated death toll from COVID-19. An ARIMA model was used to estimate his cumulative confirmed cases of COVID-19. Using an autoregressive model, a Moving Average (MA), a combination of both (ARMA), and an integrated ARMA (ARIMA), he predicted the COVID-19 pandemic and found that the ARIMA model performed better than other models. It turns out that it outperforms.

In addition, ARIMA models are used not only to estimate the number of COVID-19 pandemics, but also to estimate the number of fully vaccinated people, or to estimate electricity consumption and natural gas volume. The development of his ARIMA model for forecasting electricity and natural gas consumption in industrial areas of Turkey. They used the ARIMA model to determine how many people were fully vaccinated against COVID-19.

However, some research has focused on using machine learning models to predict his COVID-19 incidence. LSTM, GRU, SVR, XG Boost, RNN, etc. To do this, models ARIMA, SVR, LSTM and Bi-LSTM were built to predict the number of confirmed cases, deaths and recoveries of his COVID-19 in 10 major countries, Bi-LSTM It achieved many better prediction results than other models. Determine and compare the predictive performance of the LSTM and XG Boost algorithms. We developed GRU, LSTM, and RNN models to predict future trends in his cumulative confirmed COVID-19 cases in the top 10 countries.

However, so far, no studies have compared global COVID-19 outbreak predictions with ARIMA, MLR, and Prophet Models since the Omicron variant outbreak. Study, his daily confirmed cases of COVID-19

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worldwide between 1 November 2021 and 17 February 2022 were obtained from his WHO website. Based on sample size and data characteristics, ARIMA, MLR, and Prophet models were built and compared to predict daily confirmed COVID-19 cases worldwide from 18 February to 18 March 2022. The best model was selected for To the best of

our knowledge, this is the first study to examine in detail the construction and comparison of his ARIMA, MLR and Prophet models for predicting daily confirmed cases of COVID-19 worldwide. We hope that the prediction results of this research will serve as a reference for the prevention and control of new coronavirus infections around the world.