

The efficacy of deep learning based LSTM model in forecasting the outbreak of contagious diseases

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Abstract

The coronavirus disease that outbreak in 2019 has caused various health issues. According to the WHO, the first positive case was detected in Bangladesh on 7th March 2020, but while writing this paper in June 2021, the total confirmed, recovered, and death cases were 826922, 766266 and 13118, respectively. Due to the emergence of COVID-19 in Bangladesh, the country is facing a major public health crisis. Unfortunately, the country does not have a comprehensive health policy to address this issue. This makes it hard to predict how the pandemic will affect the population. Machine learning techniques can help us detect the disease's spread. To predict the trend, parameters, risks, and to take preventive measure in Bangladesh; this work utilized the Recurrent Neural Networks based Deep Learning methodologies like LongShort-Term Memory. Here, we aim to predict the epidemic's progression for a period of more than a year under various scenarios in Bangladesh. We extracted the data for daily confirmed, recovered, and death cases from March 2020 to August 2021. The obtained Root Mean Square Error (RMSE) values of confirmed, recovered, and death cases indicates that our result is more accurate than other contemporary techniques. This study indicates that the LSTM model could be used effectively in predicting contagious diseases. The obtained results could help in explaining the seriousness of the situation, also mayhelp the authorities to take precautionary steps to control the situation.