A hybrid method for analyzing the situation based on cumulative fully vaccinated and confirmed cases of Covid-19 in Malaysia

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ABSTRACT

SARS-CoV-2 is an infection that affects several organs and has a wide range of symptoms in addition to producing severe acute respiratory syndrome. Millions of individuals were infected when it first started because of how quickly it travelled from its starting location to nearby countries. Anticipating positive Covid-19 incidences is required in order to better understand future risk and take the proper preventative and precautionary measures. As a result, it is critical to create mathematical models that are durable and have as few prediction errors as possible. This study suggests a unique hybrid strategy for examining the status of Covid-19 confirmed patients in conjunction with complete vaccination. First, the selective opposition technique is initially included into the Grey Wolf Optimizer (GWO) in this study to improve the exploration and exploitation capacity for the given challenge. Second, to execute the prediction task with the optimized hyper-parameter values, the Least Squares Support Vector Machines (LSSVM) method is integrated with Selective Opposition based GWO as an objective function. The data source includes daily occurrences of confirmed cases in Malaysia from February 24, 2021 to July 27, 2022. Based on the experimental results, this paper shows that SOGWO-LSSVM outperforms a few other hybrid techniques with ideally adjusted parameters.

KEYWORDS