

Machine Learning-based Approach for Predicting Covid-19 Deaths

I. Mohamed*, B.T.G.S. Kumara, and K. Banujan

Department of Computing and Information Systems, Faculty of Applied Sciences,
Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.

*ifham547@gmail.com

Covid-19 is a highly contagious infectious virus that became a pandemic and had a major impact on global public health, resulting in deaths and serious health repercussions. It affects the human body in a variety of ways, including respiratory problems and multi-organ failure, all of which can result in death in a short period of time. In the absence of comprehensive medical treatment and with the risk of new viral variants emerging, the global mortality rate rises every day regardless of the fact that strict social separation, lockdowns, and safety precautions are in place. Excessive attention on early treatment options could help reduce mortality risk of individuals affected by the virus. Laboratory tests, medical check-up reports, and clinical biomarkers can be used to determine an individual's health status. In this backdrop, various researchers have proposed machine learning algorithms to reliably forecast the severity of Covid-19 disease. Multiple machine learning algorithms are used in this study to compare and choose the best model for predicting how long a patient will survive a coronavirus infection. Furthermore, the author determined which variables had the highest impact on the model's accuracy. Two machine learning algorithms namely Decision Tree and Random Forest were applied to predict the mortality rate. Data from 4229 individuals infected with Covid-19 were used in the study. The potential for effective death prediction was evaluated using 16 variables based on clinical laboratory data of Covid-19 infected patients. The data was standardized and processed using various pre-processing techniques before being fed into the models. From among the two models, Decision Tree yielded a higher accuracy of 95.75%, an average precision, recall, and F-measure of 0.958%, and a lower mean absolute error rate of 0.051. The findings suggest that using the Decision Tree algorithm to estimate the mortality of Covid-19 patients can lead to a more accurate final prediction model.

Keywords: A Decision Tree, Random Forest, Covid-19, Mortality Prediction