

Dengue Prediction using Short-Term Memory

Prof. Kurhe. P. V¹ and Mayuri Somase²

Department of Computer Engineering^{1,2}

SND College of Engineering and Research Center, Yeola, Maharashtra, India

Abstract: *Dengue is a severe infectious disease on the rise in Malaysia, and there is a demand for artificial intelligence to support the health system. However, the application of deep learning, specifically Long Short-Term Memory (LSTM) time series forecasting, has not been explored by many in dengue prediction studies. However, considering the availability of daily weather data being collected, the ability of LSTM to capture long term dependencies can be leveraged in forecasting dengue cases. Therefore, this study investigates the performance and viability of LSTM time series forecasting on predicting dengue cases. An LSTM model is developed and evaluated to be compared to a Support Vector Regression (SVR) model by utilising the availability of a dengue dataset consisting of weather and climate data. The results indicated LSTM time series forecasting performed better than SVR, with R2 and MAE scoring 0.75 and 8.76. In short, LSTM has shown better performance and, in addition, capturing trends in the rise and fall of dengue cases. Altogether, this research could contribute to the fight against the increase of dengue cases without relying on forecasted weather data but instead, history.*

Keywords: LSTM, Time series forecasting, Deep learning, dengue