

---

## Tracking Twitter data during the Covid-19 pandemic: A comparative analysis of tourism industry movement

Priyamal G.A.N.<sup>1</sup> and Rupasingha R.A.H.M.<sup>2\*</sup>

<sup>1</sup>*Department of Computing and Information Systems, Sabaragamuwa University of Sri Lanka, Sri Lanka.*

<sup>2</sup>*Department of Economics and Statistics, Sabaragamuwa University of Sri Lanka, Sri Lanka.*

In Sri Lanka, the tourism industry acts as one of the main roles in its economic growth. However, as this industry was heavily affected by the Covid-19 pandemic, this dominant income source of the country has become unstable. Hence, if we could identify the issues associated with this, we can be ready for the safety of the industry before any other pandemic in the future. Therefore, studying people's ideas becomes very important and Twitter is one of the best places for collecting their ideas. This study proposes a model for the analysis of the tourism industry-related tweets during Covid-19 in Sri Lanka into four categories; positive, negative, advertisement, and neutral. Here, 18980 tweets were collected from the period between years 2020 to 2022. After preprocessing, 6257 tweets were selected and used for extracting the feature vectors. Three different machine learning algorithms; Support Vector Machine, Long Short-Term Memory, and Artificial Neural Networks (ANN) were used to create a forecast paradigm and these were compared to find the best model. Among the four percentages of training data (62%, 67%, 72%, and 77%) 67% of training and 33% of the testing data set was selected. According to the results, ANN's 91% highest accuracy was achieved. Also, the study considered precision, recall, f-measure, and error values for the evaluation. According to the final result, the ANN algorithm showed the best results for sentiment analysis for tracking tourism industry movement in Sri Lanka. In this period, industry declined and negative sentiments help to identify the main issues.

**Keywords:** Covid-19, Machine learning, Sentiment Analysis, Tourism industry, Twitter

\*Corresponding author: [hmrupasingha@gmail.com](mailto:hmrupasingha@gmail.com)