UNIVERSITY OF WESTMINSTER

INFORMATICS INSTITUTE OF TECHNOLOGY

INFORMATICS INSTITUTE OF TECHNOLOGY

In Collaboration with

UNIVERSITY OF WESTMINSTER

# CoVacci-MOOD

## A Sentiment Prediction Platform to Analyze COVID-19 Vaccination related Micro Blogs Utilizing Hybrid Deep Learning Techniques

Hakmana Dura Medha Kavindi Munasinghe
w1715734 / 2017088

Supervised by:
Mr. Lakshan Costa

Submitted in partial fulfillment of the requirements for the
BEng(Hons) Software Engineering degree at the
The University of Westminster.

**April 2023**

# ABSTRACT

During the December month in 2019, a deadly disease called SARS-CoV-2 corona virus disease (COVID-19) started spreading all over the world causing the deaths of enormous number of humans. As a prevention cause world health authorities came up with several approved vaccines and started vaccination. With that vaccination start, vaccine hesitancy aroused rapidly from the society stating about reasons such as political, mythical, personal etc. As twenty first century is heavily digitalized with online communication networks such as microblogging platforms, this hesitancy was also able to clearly observe through them. As this hesitancy is a large threat for improving herd immunity, it is essential to reduce the vaccine hesitancy immediately.

During this pandemic time, it was observable that Sri Lanka suffered a lot by facing different COVID-19 variants and death waves. But still, any existing research work has not analyzed the Sri Lankan micro blogs sentiment towards COVID-19 vaccination. Therefore, this research study focuses on classifying sentiments of COVID-19 vaccination-based tweets of Sri Lanka comparatively with Canada as comparing with a high vaccination coverage countries' sentiment could provide more insights.

CoVacci-MOOD platform supports application developers, researchers and health authorities to classify vaccination sentiments with the use of Deep Learning hybrid techniques and monitor analyzed results. The classification model is developed using the most appropriate parameters and algorithms after identifying them from experimenting with different techniques.

**Keywords:** Supervised Learning, Natural Language Processing, Deep Learning, Hybrid Approaches