ABSTRAK

ANALISIS PERUBAHAN SENTIMEN VAKSINASI COVID-19 DI INDONESIA MENGGUNAKAN METODE CONVOLUTIONAL NEURAL NETWORK (CNN)

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Vaksinasi COVID-19 menjadi salah satu upaya dalam mencegah penularan COVID-19 sesuai dengan anjuran *World Health Organization* (WHO) dan didukung oleh pemerintah melalui Perpres 99 tahun 2020 dan Permenkes 2020. Sebagai bentuk respon dari program vaksinasi, masyarakat memberikan beragam opini pada *Twitter*. Dalam proses vaksinasi yang panjang ini, masih sedikit analisis feedback atau opini yang dilakukan secara seri waktu (*Time Series*) yang dapat menganalisis perubahan opini masyarakat dari fase ke fase. Pada penelitian ini akan dilakukan analisis perubahan sentimen secara *Time Series* menggunakan algoritma Convolutional Neural Network (CNN) untuk mencari model terbaik. Data yang didapat akan dilakukan pembobotan dengan metode *FastText.* Perubahan sentimen akan dibagi kedalam tiga fase dengan masing masing fase dilakukan percobaan sebanyak sembilan kali dengan tiga variasi epoch yaitu 10 epochs, 50 epochs, dan 100 epochs. Masing masing epochs dilakukan tiga variasi split data yaitu 80:20, 70:30, dan 60:40. Hasil penelitian menunjukan model dapat mencapai akurasi tertinggi hingga 87,7%. Hasil sentimen pada fase pertama memliki sentimen positif sebanyak 1454 negatif sebanyak 1541 dan memiliki tingkat kepercayaan analisis sebesar 82,2%. Hasil sentimen pada fase kedua memliki sentimen positif sebanyak 1379 negatif sebanyak 1265 dan memiliki tingkat kepercayaan analisis sebesar 87,7%. Hasil sentimen pada fase ketiga memliki sentimen positif sebanyak 1059 negatif sebanyak 872 dan memiliki tingkat kepercayaan analisis sebesar 84%.

Kata Kunci – Analisis Sentimen, Vaksinasi COVID-19, *Time Series*, *Convolutional Neural Network*, *FastText*.

ABSTRACT

ANALYSIS OF CHANGES IN COVID-19 VACCINATION SENTIMENT IN INDONESIA USING CONVOLUTIONAL NEURAL NETWORK (CNN) METHOD

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The COVID-19 vaccination is one of solution to prevent the transmission of COVID-19 with the recommendations of the World Health Organization (WHO) and supported by the government through Presidential Decree 99 of 2020 and the Minister of Health's Regulation 2020. As a response to the vaccination program, the public gave various opinions on Twitter. In this long vaccination process, there is still little feedback or opinion analysis based on time series that can analyze changes of public opinion from phase to phase. In this study, an analysis of sentiment changes in Time Series will be carried out using the Convolutional Neural Network (CNN) method to find the best model. The data obtained will be weighted using the FastText method. Sentiment changes will be divided into three phases with each phase being experimented with nine times with three variations of epochs, namely 10 epochs, 50 epochs, and 100 epochs. For each epoch, three variations of split data were carried out, namely 80:20, 70:30, and 60:40. The results showed that the model can achieve the highest accuracy up to 87.7%. The results of the sentiment in the first phase have positive sentiments of 1454 negative as many as 1541 and have 82.2% analytical confidence level. The sentiment results in the second phase have 1379 positive sentiments negative as many as 1265 and have 87.7% analytical confidence level. The sentiment results in the third phase have 1059 positive sentiments negative as many as 872 and have 84% analytical confidence level.

Keywords – Sentiment Analysis, COVID-19 Vaccination, Time Series, Convolutional Neural Network, FastText.