ABSTRAK

Deteksi emosi penting diberbagai bidang seperti pendidikan, bisnis, rekrukmen karyawan. Teks relatif lebih mudah digunakan untuk deteksi emosi. Model emosi yang sangat populer adalah model emosi Ekman yang memiliki 6 label emosi yaitu bahagia, sedih, takut, jijik, marah, dan terkejut. Saat ini media sosial menjadikan penggunanya cenderung berekspresi emosi melalui postingan teks. Salah satu media sosial yang memiliki laju pertumbuhan pengguna tertinggi di indonesia adalah *twitter*.

Penelitian ini menggunakan metode *deep learning* yaitu *Long Short Term Memory* (LSTM). LSTM efektif untuk mengolah data sekuensial seperti teks, karena memiliki *memory cell*. Penelitian ini menggunakan metode LSTM dengan *word embedding fasttext*. Penggunaan *word embedding fasttext* dapat menangani masalah *Out Of Vocabolary*(OOV), dimana masalah ini tidak dapat ditangani oleh *word embedding word2vec* dan *word embedding* glo-ve. Penelitian ini akan mencari arsitektur terbaik dengan menguji parameter yaitu *word embedding*(*word2vec*, glo-ve, *fasttext*), jumlah unit/*neuron*, dan *dropout*. Metodologi penelitian ini dimulai pengumpulan data dari *twitter* dengan teknik *web scraping*, *labelling* data, proses *preprocessing*, pengujian *word embedding*, inisialisasi *dropout* dan unit *neuron*, pengujian *confusion matrix* untuk mendapatkan *accuracy*, *precision*, *recall*, *f1-score*.

Hasil penelitian ini menunjukkan bahwa *word embedding fasttext* memiliki kelebihan dapat menangani masalah pada *word embedding word2vec* dan *word embedding* glo-ve, namun jika diterapkan pada LSTM belum dapat meningkatkan *accuracy*, *precision*, *recall*, *f1-score*. Hasil pengujian arsitektur LSTM dengan *word embedding word2vec* terbaik yaitu *accuracy* sebesar 77,011%, *precision* sebesar 78,623%, *recall* sebesar 77,011%, dan *f1-score* sebesar 77,262%. Hasil pengujian arsitektur LSTM dengan *word embedding* glo-ve terbaik yaitu *accuracy* sebesar 74,712%, *precision* sebesar 76,263%, *recall* sebesar 74,712%, dan *f1-score* sebesar 74,987%. Hasil pengujian arsitektur LSTM dengan *word embedding fasttext* terbaik yaitu *accuracy* sebesar 77,011%, *precision* sebesar 78,623%, *recall* sebesar 77,011%, dan *f1-score* sebesar 77,262%. Berdasarkan pengujian *word embedding*, hasil arsitektur LSTM dengan *word embedding word2vec* dan *fasttext* menghasilkan *accuracy*, *precision*, *recall*, dan *f1-score* terbaik.

Kata kunci : *Deep Learning*, Deteksi Emosi, LSTM, *Fasttex*

ABSTRACT

Emotional detection is important in various fields such as education, business, employee recruitment. Text is relatively easy to use for detecting emotions. A very popular emotion model is Ekman's emotional model which has 6 emotional labels, namely happy, sad, afraid, disgusted, angry, and surprised. Currently, social media tends to tend to express emotions through text posts. One of the social media that has the highest user growth rate in Indonesia is Twitter.

This study uses a deep learning method, namely Long Short Term Memory (LSTM). LSTM is effective for processing sequential data such as text, because it has memory cells. This study uses the LSTM method with word embedding fasttext. The use of word embedding fasttext can solve the problem of Out Of Vocabolary (OOV), where this problem cannot be handled by word embedding word2vec and word embedding glo-ve. This study will find the best architecture by testing the parameters, namely word embedding (word2vec, glo-ve, fasttext), number of units/neurons, and dropout. The methodology of this research begins with collecting data from Twitter with web scraping techniques, data labeling, preprocessing, word embedding testing, initialization of dropout and neuron units, testing confusion matrix to get accuracy, precision, recall, f1-score.

The results of this study indicate that word embedding fasttext has the advantage of being able to handle problems in word embedding word2vec and word embedding glo-ve, but if applied to LSTM it has not been able to improve accuracy, precision, recall, f1-score. The results of testing the LSTM architecture with the best word embedding word2vec are 77.011% accuracy, 78.623% precision, 77.011% recall, and 77.262% f1-score. The results of testing the LSTM architecture with the best word embedding glo-ve are 74.712% accuracy, 76.263% precision, 74.712% recall, and 74.987% f1-score. The results of testing the LSTM architecture with the best fasttext word embedding are 77.011% accuracy, 78.623% precision, 77.011% recall, and 77.262% f1-score. Based on the word embedding test, the results of the LSTM architecture with word embedding word2vec and fasttext produce the best accuracy, precision, recall, and f1-score.

Keyword : *Deep Learning*, *Emotion Detection*, LSTM, *Fasttext*