Abstract

In the rapidly increasing information age, sentiment analysis has become very important to understand users' perceptions and feelings towards companies, especially in terms of cybersecurity, such as the ransomware threat against Bank Syariah Indonesia (BSI). This study aims to produce a more flexible and accurate Convolutional Neural Network (CNN) model to understand sentiment by performing hyperparameter optimizations that include embedding size, kernel size, and filter combinations in the convolution layer. The results of this experiment show that hyperparameter optimization can improve the accuracy of sentiment analysis on test data, with the highest accuracy of 93% using parameters of embedding size 200, kernel size 3, and filter combinations (64, 128, 256). Overall, the study's findings allow for further research on optimizing CNN's model for BSI ransomware-related sentiment analysis. By providing a better understanding of complex dynamics, these findings have the potential to increase the effectiveness of sentiment analysis solutions broadly.

Keywords: hyperparameter optimization, sentiment analysis, convolutional neural network (CNN)