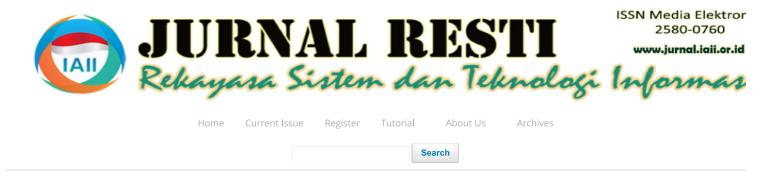
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Mask Detection Using Convolutional Neural Network Algorithm

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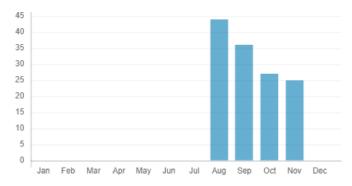
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Keywords: Mask detection, Convolutional Neural Network, MobileNetV2, CNN optimizations

Abstract

The World Health Organizations and the Ministry of Health of the Republic of Indonesia have required the use of masks to suppress the spread of COVID-19. WHO provides guidance on how to use a good mask to cover the mouth and nose. This study aims to detect the correct use of masks using the Convolutional Neural Network. CNN is a popular Deep Learning algorithm for image data classification problems. The Mask Usage Detector is built with the help of a pre-trained MobileNetV2 model with an architecture that supports media that has minimum computations. This study will also compare the performance of three optimization methods from CNN, namely Adam, SGD, and RMSprop in detecting the use of masks. Performance will be seen from the test results by analyzing the values of accuracy, precision, and recall. The dataset used is in the form of image data of 2,029 images for 2 categories, namely "masked" and "unmasked". A total of 1,623 images were used as training data and 406 images for test data. Based on the testing process, the accuracy of each optimization is 93.84% with Adam optimization, 84.48% with SGD optimization, and 93.10% with RMSprop optimization. With the proposed model, this study obtains the performance results of the three CNN optimizations, and it is concluded that adam's optimization gives better performance results than the other two optimizations.

Downloads



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