

## ABSTRACT

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COVID-19 CHEST X-RAYS IMAGE CLASSIFICATION USING  
CONVOLUTIONAL NEURAL NETWORK (CNN) WITH CONVNEXT  
ARCHITECTURE.

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*COVID-19*

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COVID-19 is a disease that attacks the lungs. The process of classifying COVID-19 disease can use x-ray images which are the results of radiological examinations of the lungs. X-ray images classification can utilize Convolutional Neural Network (CNN) algorithms based on results of feature extraction in X-ray images. This research implements x-ray images classification process based on the ConvNeXt architecture which is one of the best models with an accuracy value of 87.6% in the ImageNet dataset. The model training process uses the COVID-19 Radiography Database dataset with a total of 10192 images for the Normal class, 3616 images for the COVID-19 class, 6012 images for the Viral Pneumonia class, and 1345 images for the Viral Pneumonia class. The model training process implements reweighting on the loss function and scheduling the learning rate value based on Cosine Learning Rate Decay. The results of the research are in the form of the CNN model with the ConvNeXt architecture which has a performance metric value of more than 96%. Performance metrics consist of accuracy, precision, recall, and F1-Score. The selected model will be packaged in an API service to carry out the inference process in the form of a docker image that is ready to be used and deployed flexibly.

Bibliography (2015-2022)