## The Covid-19 Diagnostic System Using Lung X-Rays with the Convolutional Neural Network (CNN) Method.

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## ABSTRACT

According to world data, the number of Covid-19 sufferers continues to increase every day. In Indonesia up to October 13, 2020, there have been about 340,622 positive patients, 263,296 recovered patients, and 12,027 patients died (data taken from the https://covid19.go.id/ site). However, several instances in some areas, the hospital classifies patients as Covid-19 patients after they die in the hospital and are buried according to health protocols. Because the test results came out quite a long time, after three days of being buried, it turned out that the family who died were not exposed to Covid-19. Given these problems, this final project proposes a "Covid-19 Diagnosis System Using Lung X-Rays with the Convolutional Neural Network (CNN) Method". The CNN model used has three convolution layers using the RELU activation function with max-pooling as pooling layer; in the fullyconnected layer, there are three hidden layers with one dropout layer. This system produces a program with a data training process using 1841 training data and 525 validation data resulting in a validation accuracy of 98.86% with 63 minutes. It can classify data with maximum accuracy to help identify patient infections without waiting three days after the patient dies. Furthermore, it can also convince asymptomatic patients not to carry out their usual activities.

Keywords: Convolutional Neural Network, Covid-19, Virus, Expert System, Diagnosis.