

## ***Abstract***

*In humans, various systemic and dermatological diseases can be easily diagnosed by examination of the nails of both hands and feet. Many hoof diseases have been found as early signs of various underlying systemic diseases. Color, texture or deformation of the nails are symptoms of various Diseases especially those that affect the nails. A common problem that occurs is still many people who do not know that changes in nails can indicate human health, which can be seen directly from changes in nails and lunula or commonly called crescents found in the nails (half moon fingernails). The lunula pattern found in the nails can tell the condition of the body that is good or the condition is not good, such as the pattern of lunula that is large, small or has no lunula at all.*

*Based on the general problems that occur, a system is created that can predict a disease by utilizing image processing as a solution. From the image processing process, an image can be grouped based on the necessary medical needs that can analyze human nails*

*In this study, three classes of nail diseases will be classified, namely Terry's Nails, Yellow Nail Syndrom, and finally Muehrcke lines based on image processing with deep learning technology using Convolutional Neural Network (CNN). The CNN method has several types of architecture, the architecture used in this study is VGG16net. In the learning process, the VGG16net architecture uses 16 Layers. VGG16net is characterized by a  $3 \times 3$  convolution layer. The results obtained from the study for the classification of three classes of nail diseases, namely Terry's Nails, Yellow Nail Syndrom, and finally Muehrcke lines got an accuracy value of 94% of the best parameters, namely epoch = 25 and batch = 30. Using data of 166 image data that was tested.*

***Keywords: Nails, image processing, Convolutional Neural Network, VGG16net***