## *ABSTRACT*

*Pneumonia is a prevalent respiratory condition that necessitates prompt and precise diagnosis for optimal treatment. As stated by the World Health Organization (WHO), pneumonia is responsible for 16% of deaths among children under the age of five and is a contributing factor in up to 920,136 deaths in this age group. Pneumonia can be identified through the use of chest X-ray images. The research will employ the VGG-16 architecture, comprising 16 hidden layers. The image in question will be divided into two distinct categories: a normal x-ray and a pneumonia x-ray. This research examines the efficacy of the convolutional neural network (CNN) approach in detecting pneumonia. It is anticipated that this analysis will reduce the incidence of errors in detection and facilitate the process of identifying pneumonia. Furthermore, it will provide guidance and insight for the development of image processing systems that are both efficient and accurate in diagnosing pneumonia. The efficacy of the test is contingent upon a number of factors, including image size, epoch, learning rate, batch size, and optimizer type. The highest level of accuracy was achieved when testing with an image size of 64 x 64 pixels, an optimizer type of Adam, and a learning rate value of 0.0001, in addition to an epoch value of 128 epochs and a batch size value of 32 samples. In these optimal parameters, the accuracy rate was 97.08%, with a loss value of 21.38 and a precision value of 97%, recall of 97%, and an F1-score of 97%.*



***Keywords*** *: Convolution Neural Network, Pneumonia,* X-Ray