

ABSTRACT

Indonesia's food productivity has tended to decline in recent years, which has led to a reduction in food crop production, threatening food security. One of the factors contributing to this decline is crop disease. To alleviate the impact of declining agricultural productivity, research was conducted to build a tool that can be used to detect diseases in food crops. The food crop that will be classified in this research (whether infected with disease or not) is maize (corn), which was chosen because it is one type of food crop that tends to be widely consumed in Indonesia.

This research is carried out by developing a CNN model to classify maize plant diseases, so that damage to maize plants due to disease can be prevented and help increase the amount of maize production. By increasing the amount of production, the food security of the Indonesian people will be better maintained. The data used are images of diseased and non-diseased maize plant leaves. This data is divided into three parts before being used to build a model with the TensorFlow library and Python programming language. The CNN model will then be evaluated using accuracy and loss. The developed CNN model has an accuracy of about 0.9794 and a loss of about 0.1799.

The CNN model is an effective approach to solving image classification problems. This can be utilized in the agricultural sector, namely to conduct early detection of food crop diseases so that the plants concerned can be followed up immediately. For future research, image data from other food crops can be used to detect specific diseases of these food crops.

Keywords— CNN, classification, diseases, maize, agriculture