

## ABSTRACT

Rice is a staple food for Asians, especially in Indonesia. To process rice into rice, there are 2 things that must be done, namely the traditional way such as pounding and there are also modern methods such as milling using machines. As is known, many types of rice have been circulating in the market. With the various types of rice circulating, of course there are also things that humans cannot do in classifying types of rice by relying on the sense of sight alone. Therefore, digital image processing can play an important role in making it easier for humans to classify types of rice.

In this study, image-based classification of rice species was carried out using the Convolutional Neural Network (CNN) method and AlexNet architecture. The dataset used is an image of 2500 grains of rice originating from Kaggle and is divided into five classes, namely Arborio rice, Basmati rice, Ipsala rice, Jasmine rice, and Karacadag rice.

The parameters used to perform the analysis in this study are accuracy, precision, recall, and F1-score. This study also uses four test scenarios for hyperparameters, namely input size, optimizer, learning rate, and batch size. After testing, the best results were obtained with the original image using an input size of  $128 \times 128$ , SGD optimizer, learning rate 0.0001 and batch size 32. Based on the test results, the test accuracy obtained was 98.40% with a testing loss of 0.0659.

**Keywords:** Type of rice, *Convolutional Neural Network (CNN)*, *deep learning*, AlexNet.