# ABSTRACT

Cataracts are the leading cause of global blindness according to the World Health Organization in 2019 with approximately 100 million cases of blindness in 2020. Although they can be detected through fundus images that show the condition of the retina, optic nerve, macula, and blood vessels, the interpretation process is still done manually, thus relying on the expertise of medical personnel and potentially resulting in inconsistent diagnoses. This study focuses on building a cataract classification model on retinal images using a Convolutional Neural Network (CNN) with the Inception-V3 architecture. CNN is used to automatically extract image features through convolutional and pooling layers, then perform classification through a fully connected layer. The dataset used comes from Kaggle and consists of 2112 images with two classes, namely normal and cataract. The Inception-V3 architecture was chosen because it is able to extract features at various kernel sizes in parallel and supports transfer learning, making it effective for limited datasets. The model was trained and tested in two different scenarios, namely the use of RGB images and grayscale images, with a combination of hyperparameters such as learning rate, batch size, and epoch. The test results using the CNN method with the Inception-V3 architecture obtained good results for classifying cataract disease in the eye with the highest accuracy of 99.05% at a learning rate of 0.00001, batch size 32, and epoch 30.

**Keywords** : Cataract, Fundus Image, Convolutional Neural Network, Inception-V3