

ABSTRACT

The eye is a sensory tool in humans that functions as a visual organ. A very disturbing vision problem is the problem of blindness. Referring to data from the Indonesian Ministry of Health's Riskesdas in 2013, the most common causes of blindness in Indonesia are cataracts. With the development of technology, the detection and classification of cataracts is easier with digital image processing.

In this Final Project, a system is made to classify digital images into three categories of normal image analysis, immature cataract images, and mature eye cataract images. This Final Project uses the 3D Gray Level Co-Occurrence Matrix (3D GLCM) method as feature extraction and the Backpropagation Artificial Neural Network method as a classification.

From the test results obtained the best testing of cataract classification was 91,11%. The accuracy was obtained from testing 90 eye images using the 3D Gray Level Co-Occurrence Matrix method with a combination of four statistical characteristics consist of Contrast, Correlation, Energy and Homogeneity with an offset directions [0 1 -1] and Backpropagation Artificial Neural Networks (ANN) when epoch 100 and hidden layer 500.

Keyword: *Cataracts, 3D GLCM, Artificial Neural Networks, Backpropagation.*