

## **Abstract**

Iridology is a pseudoscience that studies changes in the surface structure of the iris eye due to an illness suffered by a person. Iridology has been applied in many alternative treatments to help patients recognize their disease. One of the uses of this technique is detecting disease in the kidneys.

A research applying Principal Component Analysis method and backpropagation neural network to recognize an abnormal characteristics in the iris of the patient through digital image is conducted in order to facilitate inspection practices and reduce human error that occurs during the examination. System will receive iris digital image of the patient as an input, and then processing it which will produce a justification whether the patient is sick or not as an output.

The results showed that the two methods above can be used as a solution in recognizing the abnormal characteristic on iris digital image by 100% accuracy on training data and 96.68% on testing data. A correct preprocessing techniques and good image quality is also a factor supporting the accuracy of the application build to assist and facilitate the iridologist in recognizing diseases suffered by their patients.

**Keywords :** Iridology, image, Principal Component Analysis, artificial neural network, backpropagation.