Universiti Teknologi MARA

# Diagnosis of Eyesight Using Improved Clonal Selection Algorithm (ICLONALG)

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# ABSTRACT

The eyesight is one of the important senses in human to perform daily activities. The untreated eye's problem can lead to blindness and serious eye diseases such as glaucoma and cataracts. Nowadays, people are not aware with their eye's conditions and thought it is just temporary problems and not important to take care about. They only realize when their eye's condition has become worst. So, it is difficult for the doctors to diagnose the problems when their eye's condition became worst. Therefore, in order to provide the excellent eyesight's problem care, it needs an intelligent diagnostic of the eyesight to detect the classification of eyesight diseases. This study aims to implement the classification algorithm using the Improved Clonal Selection Algorithm (ICLONALG) to classify the eyesight's problems. The principle of ICLONALG is to select the best cells to be cloned and mutated by calculating similarity measurements of the most competent cells. The improvement of ICLONALG applied is creating memory cells by dividing the datasets into local group of k-size so that each dataset belongs to at least a group and calculating the center of each group that will be selected to the next process but still used the same cloning and mutation process. In this paper, ICLONALG is implemented to classify the eyesight problems and provide a prototype to diagnose the eye diseases. The data used is collected from the survey of patients in Hospital Sultanah Nur Zahirah which has thirteen parameters of symptoms for eye diseases. The implementation of the algorithm has several step and process to take which are discussed in details in this paper. This system will ease the users and the doctors especially the new doctors to check on the eye diseases. This system is evaluated by calculating the accuracy of the classification of the eye's diseases. The result showed 50% in accuracy and gives the classification of the eye diseases that the user has suffered where the eye diseases can be classified into four types of eye diseases. For the future work, this experiment could be proceeding by adding more types of eye diseases that can be diagnosed.

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