

## ***Abstract***

*In the medical science development, the way to analyze and classify chromosome is with the traditional method, examine the chromosome using microscope then analyze it manually. This Methods needs more time in the work. To facilitate this, a new automatic system is developed to classify and analyze human chromosome. It will be execute in digital image of human chromosomes. The Software will examine the chromosomes with image processing, segmentation process, and finally classifying the object using the length with Neural Networks. The Neural Network is being used because of their reliability in planning and applying the methods.*

*A software is developed to classify human chromosome. The software is based on image processing and neural network with back-propagation algorithm. The image processing includes the preprocessing, segmentation and feature extraction and the neural network includes training and testing the result of image processing.*

*The software is created with the use of Matlab 7. From the training and testing result by using 6 human chromosome, the accuration 93,6406 % is gained using 8-bit of output based on learning rate of 0,125, 40 hidden neuron, and momentum 0,225, thus the accuration of 83,5324% is gained by using 24-bit output based on learning rate 0,01, 15 hidden neuron and momentum 0.5.*

***Keywords*** : *image processing, segmentation, back-propagation, Artificial Neural Network*