

ABSTRACT

Breast cancer is one of the leading causes of death in women and is the first most common cancer in Indonesia. Therefore, it is necessary to have early detection and prevention so as to reduce the number of breast cancer sufferers, one of which is using mammography procedures. Classification methods such as Support Vector Machine (SVM) and Feed – Forward Backpropagation Artificial Neural Network can be used to help doctors and radiologists to detect cancer from mammogram images.

In this study, a system is designed to identify breast cancer using mammogram images by comparing two classification methods and two types of texture feature extraction. The classification method used is SVM and Feed - Forward Backpropagation Artificial Neural Network with first order feature extraction method and Gray Level Co-Occurrence Matrix (GLCM). The dataset used consists of 500 images with benign and malignant classes. The mammogram image is pre-processed and then the image will be extracted using the first order method and GLCM. Then the classification stage is carried out using the SVM and Feed - Forward Backpropagation Artificial Neural Network methods.

In this final project, the pixel spacing is tested on GLCM, first order extraction, kernel type is tested on SVM, type of activation function is tested on ANN and combines first order feature extraction with GLCM. The final result shows that the best method to identify breast cancer from mammogram images is to use the ANN method with binary sigmoid activation function which obtains 90% accuracy. The SVM method obtained an accuracy value of 89% with Gaussian and Polynomial kernels.

Keywords: Breast Cancer, Mammogram Image, Support Vector Machines, Feed – Forward Backpropagation Neural Network, Gray Level Co-Occurrence Matrix, First Order