

## **ABSTRACT**

Lung cancer is one of diseases can cause lethal. Most of lung cancer is caused by smoke of cigarettes and air pollution. To detect lung cancer can be done by inspection rontgen photo of thoraks and sitologi phlegm.

Digital image processing helps the radiologists to diagnose lung cancer based on computer. This project aims to produce a tool to diagnose and classify type of lung image automatically into cancer, normal or effusion pleura besides to analyze the performance of principal components that used and calculate the accuration from the system.

Generally, the system of lung cancer detection consists of three main parts, image preprocessing, featured extraction using principal components analysis and classification using back-propagation neural network. Principal components analysis is used to get the low dimension image which do not have correlation between the pixels. The output of feature extraction is used to input for backpropagation artificial neural network.

The accuracy for training data set is 100% and for testing data set is 73,33%.

Key Words : principal components analysis, image processing, artificial neural network.