

## **ABSTRACT**

*Colorectal cancer is one type of malignant cancer found in the large intestine (colon) and the lowest part of the large intestine that is connected to the anus (rectum) due to an unhealthy lifestyle. There are several types of colon cancer that attack humans, namely Sarcoma, Lymphoma, and Carcinoma. Early examination and treatment are very important for the prevention of cancer patients to a higher stage level. This final project aims to produce a system that can diagnose and classify large intestine images into cancer types Lymphoma, carcinoma, or normal.*

*The system designed in this thesis classifies the type of colon cancer through large intestine images stages that are carried out namely the preprocessing process, feature extraction using the Principle Analysis Component (PCA) and using the Support Vector Machine (SVM) classification. Testing is done by trying to set the statistical characteristics of PCA for optimization results.*

*The results of this study are image processing systems that can detect colon cancer and classify existing types. The highest achievement of accuracy was obtained by using 90 test data measuring  $64 \times 64$  pixels, green color images, using Entropy, Mean, and Skewness statistical parameters in the Principle Analysis Component (PCA) method. The classification process of the Support Vector Machine (SVM) method is carried out by the kernel Radial Basis Function (RBF), and the Multiclass One-Against-One (OAO) distribution is 74.44%.*

*Keywords: colorectal cancer, PCA, SUPPORT VECTOR MACHINE (SVM)*