

## ABSTRACT

*Technological advances in the field of computers today encourage the development of research and application of image processing techniques. Some of the growth of new technological advances opportunities for further development in this field. Currently the image processing has a very important role in many areas of life, such as in the health sector. Cancer is an abnormal cell growth or uncontrolled causing deformation and enlargement of body parts. Currently in diagnosing cervical cancer in women desperately need a long time to get the data or information quickly. With this application can help in early detection of cervical cancer by IVA method using Zero-crossing operator.*

*In this study designed a system for early detection of cervical cancer by IVA method with the help of software Matlab 2015a. Subject of this research is to make the application the application of edge detection operator to detect early cervical cancer. The data used is a sample image of the cervix that have been screened by the method of IVA (Visual Inspection Acetic Acid) is the image of the cervix that has been smeared 3-5% acetic acid in the form of extension .png image file. There are several steps the program carried out which takes the image of the cervix, and then the image is cut (cropping), the image that has been cut is converted into a binary image (thresholding), a binary image is then processed with edge detection with operators zero-crossing can be determined so the edge of the SCJ (Squamous Columnar Junction) and local AEZ (Acetowhite epithelium Zone) to determine whether an IVA screening result is positive or negative IVA.*

*Based on tests performed on 55 test images obtained value by 89% accuracy for the detection system of SCJ, 78% for the detection system of AEZ and 67% for the detection system of IVA screening results.*

***Key Words : Acetowhite Epithelium Zone, Visual Inspection of Acetic Acid, Cervical Cancer, Skuamosa columnar junction, Zero crossing***