

Segmentasi Citra Kanker Serviks Menggunakan Markov Random Field dan K-Means

Raihana Salsabila Darma Wijaya¹, Adiwijaya², Andriyan B Suksmono³, Tati LR Mengko⁴

^{1,2}Fakultas Informatika, Universitas Telkom, Bandung

^{3,4}Sekolah Teknik Elektro dan Informatika, Institut Teknologi Bandung

¹raihanawijaya@student.telkomuniversity.ac.id, ²adiwijaya@telkomuniversity.ac.id,

³suksmono@stei.itb.ac.id, ⁴tati@stei.itb.ac.id

Abstract

Cervical cancer is a dangerous disease caused by malignant tumors that grow on the cervix and has globally attacked many women. Pap smear test is one of the early prevention efforts for cervical cancer. Medical personnel often have difficulty identifying images of cervical cancer cells. Several studies have used the K-Means clustering method to identify cervical cancer cell images from Herlev dataset. This study uses the Herlev dataset with the K-Means clustering algorithm and also used the Markov Random Field parameter as a feature for the process of identifying cervical cancer cell images. This study compared the results of the proposed method with some differences in the preprocessing. The experimental results show an accuracy of 74,51% for RGB channels without low pass filter. Accuracy of 75,11% is obtained from the segmentation process using RGB channels with low pass filter. A further increase in accuracy was obtained by 75,76% when the segmentation process used the grayscale channel with low pass Filter. Based on the segmentation experiment with the highest segmentation accuracy results, the classification process using K-Nearest Neighbor (KNN) gives an accuracy of 89,29%.

Keywords: *cervical cancer, k-means clustering, k-nearest neighbor, markov random field, pap smear*
