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Nucleus Detection using Bradley Algorithm Modification on Pap Smear Cell Image

Abstract

According to a 2010 study, cervical cancer affects women all over the world and is the fourth most common disease among women after lung, colorectal, and breast cancer. Numerous studies are being conducted to improve pre-cancer screening methods. It is challenging for doctors to collect correct data due to inconsistent and unsystematic analysis techniques. Making a determination just from eye inspection is challenging. It is probably erroneous based on the sample of microscopic images studied. This is because to the blurring, noise, shadow, lighting, and artefact issues that can damage a microscopic image. This study has modified Bradley's binarization method in order to improvise nucleus detection on pap smear image. The modification method has performance that overcome other methods which is Bernsen, Bradley, Feng, Niblack, Nick, Otsu, Sauvola and Wolf. The analysis indicate modification method has value 75.03% on Fmeasure, 92.78% on accuracy, 13.61 on PSNR and 0.086 on NRM. This study helps the modification method inspired by Bradley shows an improvement in segmenting nucleus region.