

ABSTRACT

The total of human's blood cell is effected by age and sex. Each component of cell has a different normal value. Calculating blood cell in huge amount needs careful and concentration to get a accurate result. The development in digital image processing propably to calculate red blood cell automaticaly. Some research are succeeded in calculating red blood cell by analysis method of coloring and cell size. However, specifically in separation of red blod cell that overlap isn't done yet.

In this Final Assignment, making a system of calculating red blood cell based on digital image processing using morphology method to get optimum accuration is done. Detection of red blood cell that overlap is applicated based on criteria in width with treshold 1500, 1800, and 2000. Image of red blood cell that still in RGB form is changed into grayscale form and then cropping process to reduze background of image that not use in all process. Furthermore, preprocessing is done, contains: reduze noise with median filter, contrast enhancement, changing gray image into biner image (monochrome), labelling, filling, dilation, and erotion. The result of preprocessing is used in calculating process of cell. First of all, all cell that overlap is separated. For testing criteria, image with noise and image without noise are used. Noise that used are : Gaussian, Salt and Pepper, and Speckle using intensity 0.01 to 0.05. Through implementation and testing for image without noise, system can give an average accuration 94.94% for threshold in width 1500, 94.21% for threshold 1800, 92.57% for threshold 2000. For image with Salt and Pepper noise using intensity 0.01 to 0.03 give an average accuration upto 80% for each threshold. For image with Gaussian noise using intensity 0.01 give an average accuration less s50% for each threshold. If using other intensity give an average accuration 0%. For image with Speckle noise using intensity 0.01 give an average accuration upto 75% for each threshold. If using other intensity give an average accuration less 75%.

Key words : Red Blood Cell, Digital Image Processing, and Calculating of Red Blood Cell