



OVERLAPPING WHITE BLOOD CELL SEGMENTATION AND COUNTING ON MICROSCOPIC BLOOD CELL IMAGES

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Abstract- Overlapping white blood cell identification on microscopic blood cell images is proposed for increasing the accuracy of white blood cell segmentation and counting. The accurate identification of overlapping cells can increase the accuracy of cell counting system for diagnosing diseases. The overlapping cells have different characteristic such as area and shape with a single cell of microscopic cell images therefore the overlapping cell identification based on geometric feature is preferred. As a result, the proposed method identifies and counts the number of overlapping cells similar with manual white blood cell counting. In addition, the proposed method segment nucleus and cytoplasm of white blood cell with average of accuracy 85.22% and 70.27% from the manual segmented respectively. For future work, the results can be extended to separate the identified overlapping cell therefore it can applied for differential white blood cell counting for diagnosing diseases.

Index terms: white blood cell segmentation, geometric feature, mathematical morphology, microscopic blood cell image.