

Leukocyte Detection Using Image Stitching and Color Overlapping Windows

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Abstract : Blood cell analysis plays a significant role in the diagnosis of human health. As an alternative to the traditional technique conducted by laboratory technicians, this paper presents an automatic white blood cell (leukocyte) detection system using Image Stitching and Color Overlapping Windows. The advantage of this method is to present a detection technique of white blood cells that are robust to imperfect shapes of blood cells with various image qualities. The input for this application is images from a microscope-slide translation video. The preprocessing stage is performed by stitching the input images. First, the overlapping parts of the images are determined, then stitching and blending processes of two input images are performed. Next, the Color Overlapping Windows is performed for white blood cell detection which consists of color filtering, window candidate checking, window marking, finds window overlaps, and window cropping processes. Experimental results show that this method could achieve an average of 82.12% detection accuracy of the leukocyte images.

Keywords : color overlapping windows, image stitching, leukocyte detection, white blood cell detection

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