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Estimation of White Blood Cells using Convolutional Neural Network: A Review

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Abstract: *Normally blood samples contain red blood cells, white blood cells and platelets. White blood cells are also called as leukocytes and they are the cells of immune system. The measure of White Blood Cells is so important for the doctors in diagnosing various diseases like leukemia or tissue damage etc. So, counting of White Blood Cells plays an important role. The manual counting of White Blood Cells in medical laboratories involves a device called Haemocytometer. But this process is extremely monotonous, time consuming, and leads to inaccurate results. In this work, image processing and deep learning mechanisms are used to locate and classify the White Blood Cells based on their categories. The White Blood Cells which are classified are counted and compared with the standard range of the types available in the human blood sample. By comparing the availability of White Blood Cells types, the normal and the abnormal blood samples are predicted accordingly. The dataset of the normal blood sample is obtained from the laboratory in biotechnology department and the datasets used for training in Convolutional Neural Network are attained from the website Leukocyte Images for Segmentation and Classification (LISC). This will increase efficiency and reduce the doctor's burden as traditional manual counting is dull, tedious, and possibly subjective.*

Keywords: RBC (Red Blood Cell), WBC (White Blood Cell), Leukocyte, leukemia etc.

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