

ABSTRACT

White blood cell (WBC) cancer, or leukemia, poses a significant diagnostic challenge due to its varied manifestations and morphological complexities. This paper proposes an automated method for detecting WBC cancer from bone marrow microscopic images employing Convolutional Neural Networks (CNNs). By leveraging deep learning techniques, the model autonomously extracts discriminative features from raw image data, eliminating the need for manual feature engineering. A comprehensive dataset of annotated bone marrow images, encompassing diverse WBC cancer subtypes, is utilized to train and validate the CNN model. Preprocessing steps such as normalization and augmentation are applied to bolster model robustness and generalization. The efficacy of the proposed system is evaluated using standard performance metrics including accuracy, sensitivity. The proposed framework holds promise for assisting pathologists in expedited and precise diagnosis of WBC cancer, potentially facilitating timely interventions and treatment strategies. Integration of this automated detection system into clinical workflows has the potential to enhance diagnostic efficiency and accuracy.