Title : Prediction of Abnormalities in White Blood Cells Using Deep Learning Models

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ABSTRACT

This study compares deep learning models for classifying abnormal white blood cells using four techniques: YOLOV8, EfficiencyNetB3, ResNet101V2, and DenseNet121. The dataset comprises 10,661 images of white blood cells, both normal and diseased, sourced from the Cancer Imaging Archive. The data is divided into training, validation, and test sets for model development, parameter tuning, and performance evaluation. Model performance is assessed using a confusion matrix. YOLOv8 demonstrates the best performance, achieving an accuracy of 97%, precision of 98%, recall of 99%, and F_1-Score of 98%. These findings support the development of a medical decision support system that integrates laboratory imaging to enhance diagnostic speed and reduce errors. This approach also lays a foundation for future advancements in medical image classification.

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