

# An Efficient Deep Learning Framework for Automatic Identification of Pediatric Cancer Blood Disorder

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## Abstract

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### Abstract:

Blood, bone marrow, and lymphatic systems are all impacted by hematological cancer is known as a cancer blood disorder. The most hazardous disease in children is cancer blood disorder. Every year, about 4500 children are impacted. Early disease detection is essential for effective cancer blood disorder treatment and management. It is possible to diagnose blood cancer early with deep learning algorithms. Our research suggested 2D FDWF to eliminate noise. Image enhancement is used to improve an image's clarity. So enhancement is done using de-noised images. We have proposed a 2D Contrast Limited Adaptive Histogram Equalization (2D CLAHE) technique for image enhancement. The dataset of microscopic blood sample images is collected from Kaggle. The Adaptive Fast Fuzzy Hybrid Clustering (AFFHC) technique is used for clustering, while the proposed Binary Adaptive Otsu (BAO) threshold technique is used for image thresholding. GLCM is used to extract features from segmented images. A novel 2D ECNN algorithm with Inception V3 architecture is used for classification. The results of our research were particularly promising, with our proposed approach achieving an impressive accuracy rate of 98%. This high accuracy level signifies our methodology's efficacy in predicting pediatric cancer blood disorders from medical images.

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