

Batch Number	BG3
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Guide	T G Ramnadh Babu M.Tech
Title	Advancing Malaria Identification From Microscopic Blood Smears Using Hybrid Deep Learning Frameworks
Domain/Technology	Deep Learning
Base Paper Link	https://ieeexplore.ieee.org/document/10533727
Dataset Link	https://www.kaggle.com/datasets/iarunava/cell-images-for-detecting-malaria
Software Requirements	Browser: Any latest browser (e.g., Google Chrome, Mozilla Firefox) Operating System: Windows 7 Server or later / Ubuntu 18.04
Hardware Requirements	SystemType: Intel Core i5 or above RAM: 8 GB Number of cores:4 Number of Threads: 4
Abstract	Malaria remains a significant global health threat due to limitations in traditional diagnostic approaches, including manual errors, lack of skilled personnel, and inadequate point-of-care equipment. To address these gaps, this study proposes a hybrid deep learning methodology that combines Convolutional Neural Networks (CNNs) for feature extraction with cascaded Recurrent Neural Network (RNN) classifiers—specifically GRU, LSTM, and BiLSTM—to analyze microscopic images of malaria-infected red blood cells. Among the tested models, the CNN-LSTM-BiLSTM hybrid demonstrated superior performance with an accuracy of 96.20% , a type-I error rate of 2.23% , and the lowest combined type-I and type-II errors of 3.80% . The study also evaluates training and inference time, underscoring the model's suitability for resource-constrained, IoT-enabled point-of-care diagnostics. This approach effectively bridges the gap in automated, efficient, and accurate malaria detection.

Signature of the student(s)

Signature of the Guide

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