Applying Convolutional Neural Networks in Malaria Diagnosis

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Background

Malaria is a life-threatening disease caused by plasmodium parasites that infect a subject via transmission from a female mosquito bite.

Golden standard for diagnosis malaria is microscope, however it takes time and labor from the technician.

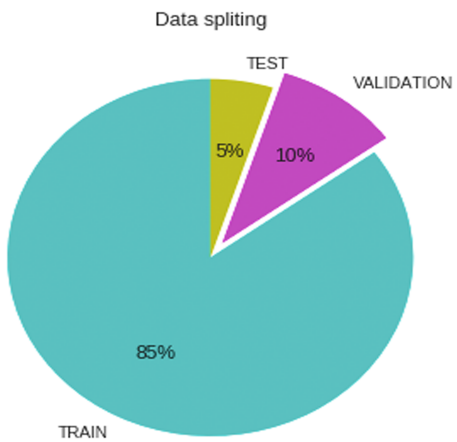
Problem

This work leverage Convoluntional Neural Network to detect and count malaria parasites from image of the stained blood smear.

Data and Experiment

We obtain dataset from US National Library of Medrcine. Dataset contain 27,588 images belonging into two classes i.e. parasites and uninfected classes.

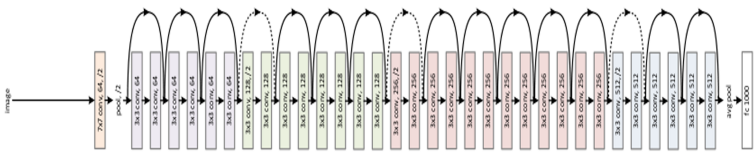
Samples of images:



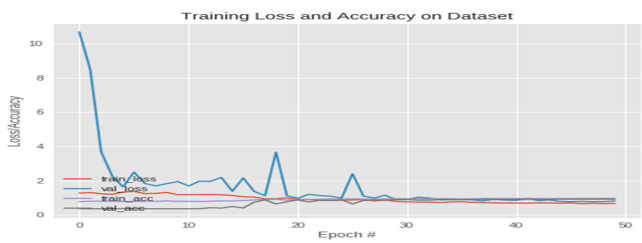
Proposed Technique

We trained a ResNet 50 architecture model.

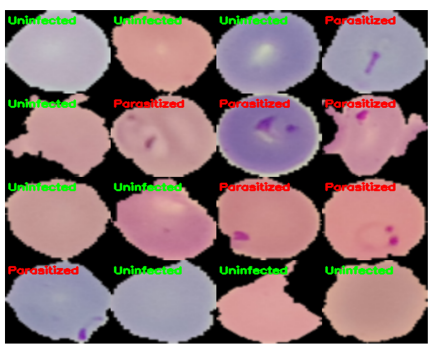
Parameters:- learning rate: 1 e-1
Epoch: 50
Batch Size: 32



Results



After doing experiment, Our model was able to attain accuracy of 0.97



Reference

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