MALARIA DISEASE DETECTION USING MACHINE LEARNING

Detecting and Deploying Uninfected and Parasitized Image Cells.

Olivia Ayora | 14.05.2024

Introduction

Malaria is highly prevalent in tropical and subtropical regions, that is life-threatening if measures are not taken early. By analyzing blood pap smears, pathologists can diagnose the pap smears.

This project leverages machine learning to predict whether a pap smear is Parasitized or Uninfected.

This Malaria Image Classification is heavily built using Python Programming Language libraries TensorFlow, and Keras

Project Overview

The presentation will focus on three major core steps in building the model, which involved splitting the data into three partitions in the ratio of 60%:20%:20% respectively

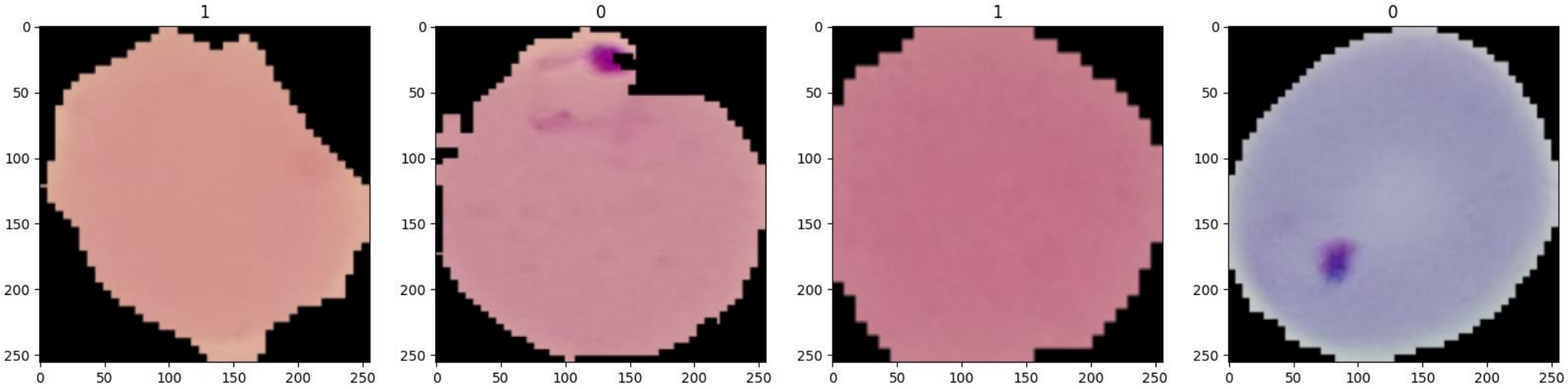
1. Training Set Data – For training the deploying model
2. Validation Data – For evaluating the model
3. Test Size – Will be used post-training the data

The subsequent slides are a brief overview/summary of the model itself.

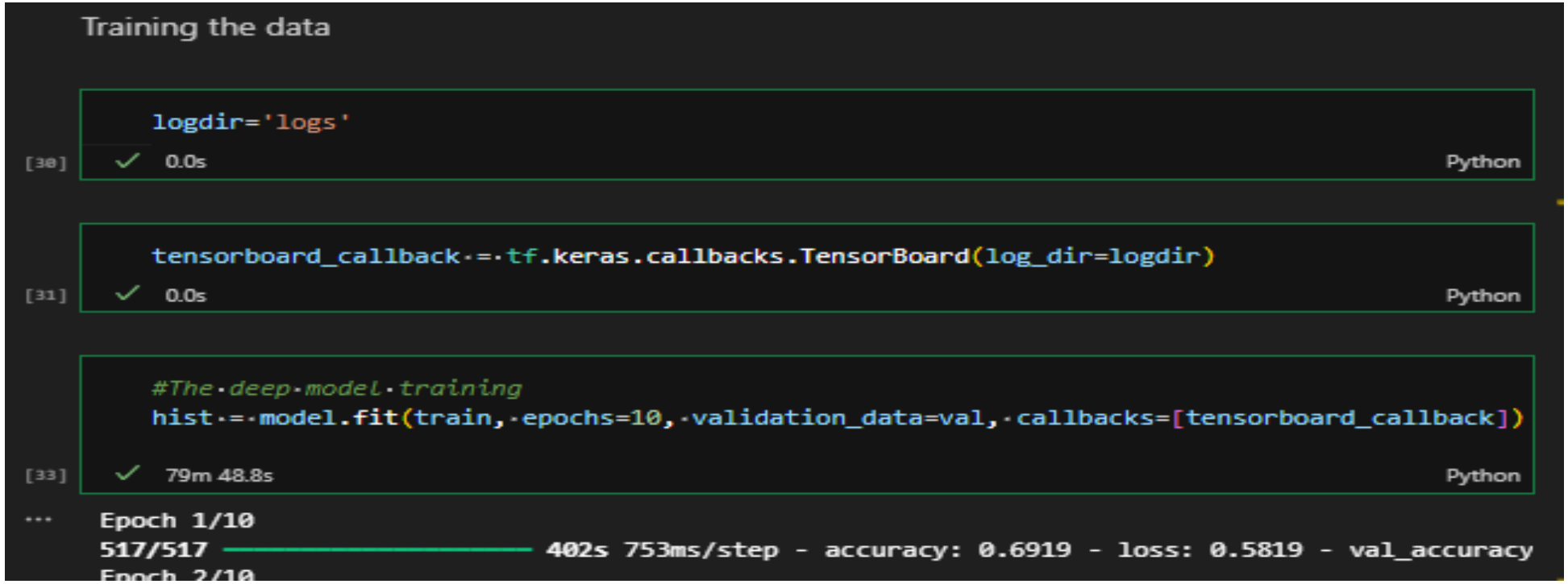
Pap Smear Labelling

Once I loaded the images, my aim was to classify them as a zero or one binary classification

Class 1 represents Uninfected Pap Smear Images and Class 0 represents Parasitized

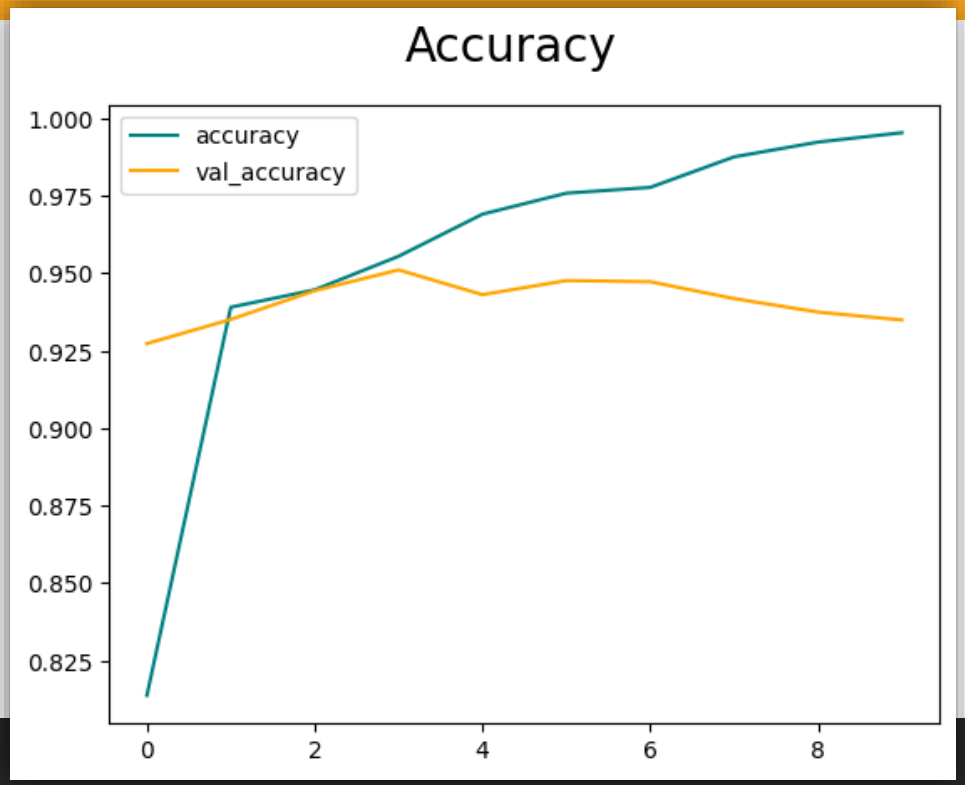


1. Training the Data

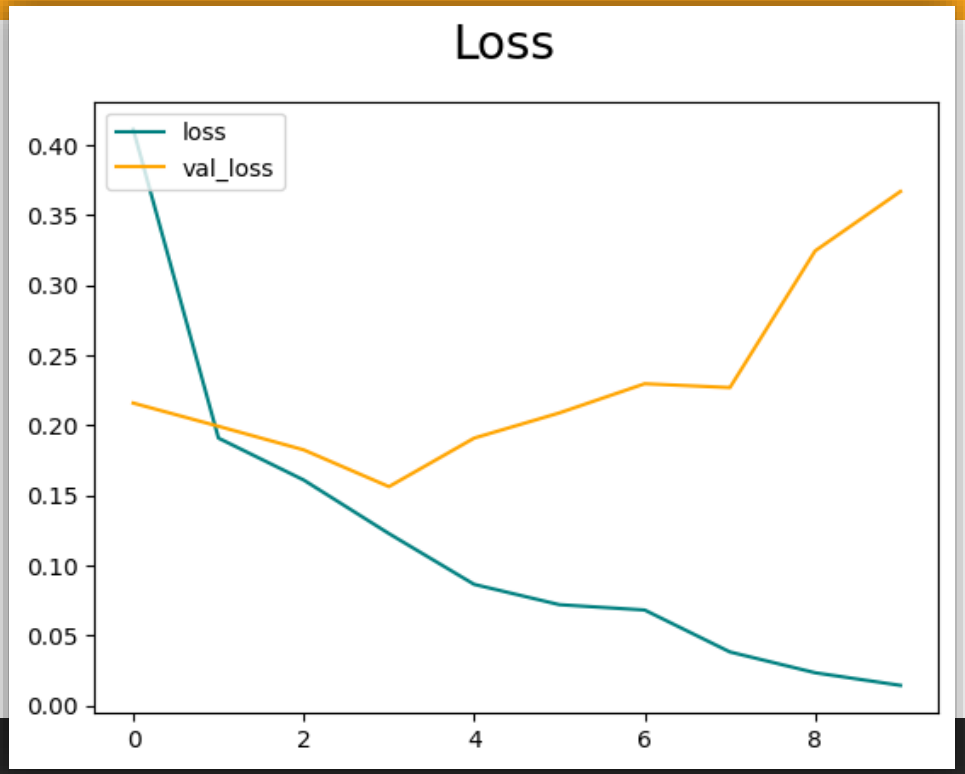


2. Validating the Model: Accuracy and Loss Metrics

ACCURACY METRICS



LOSS METRICS

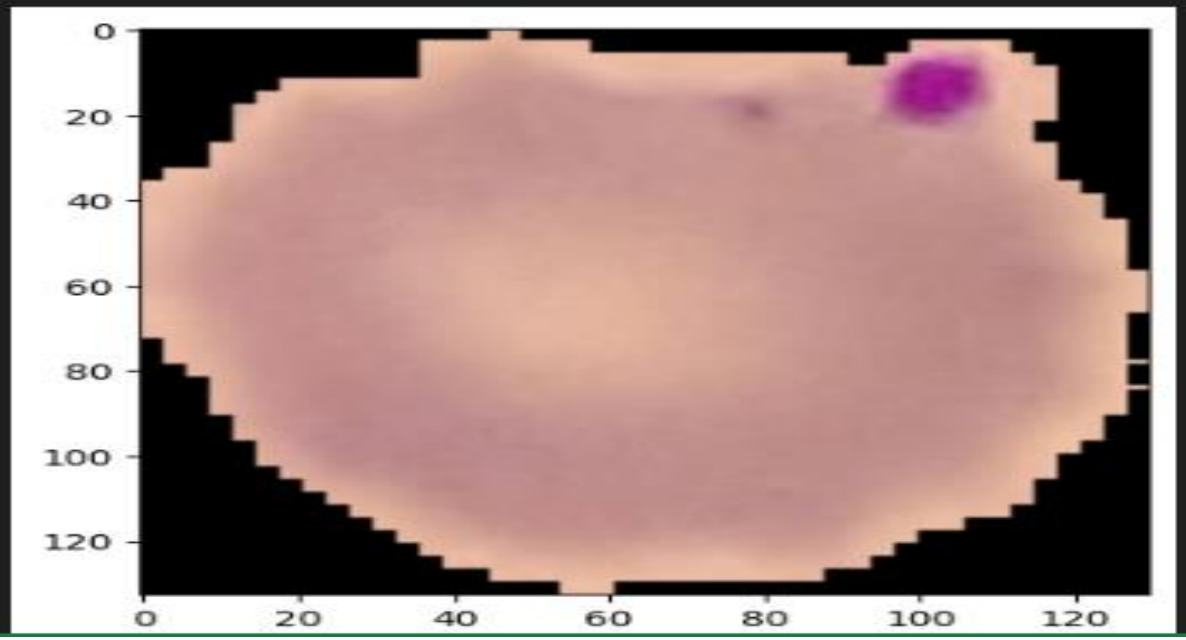


3. Testing the data, whether it is Uninfected or Parasitized.

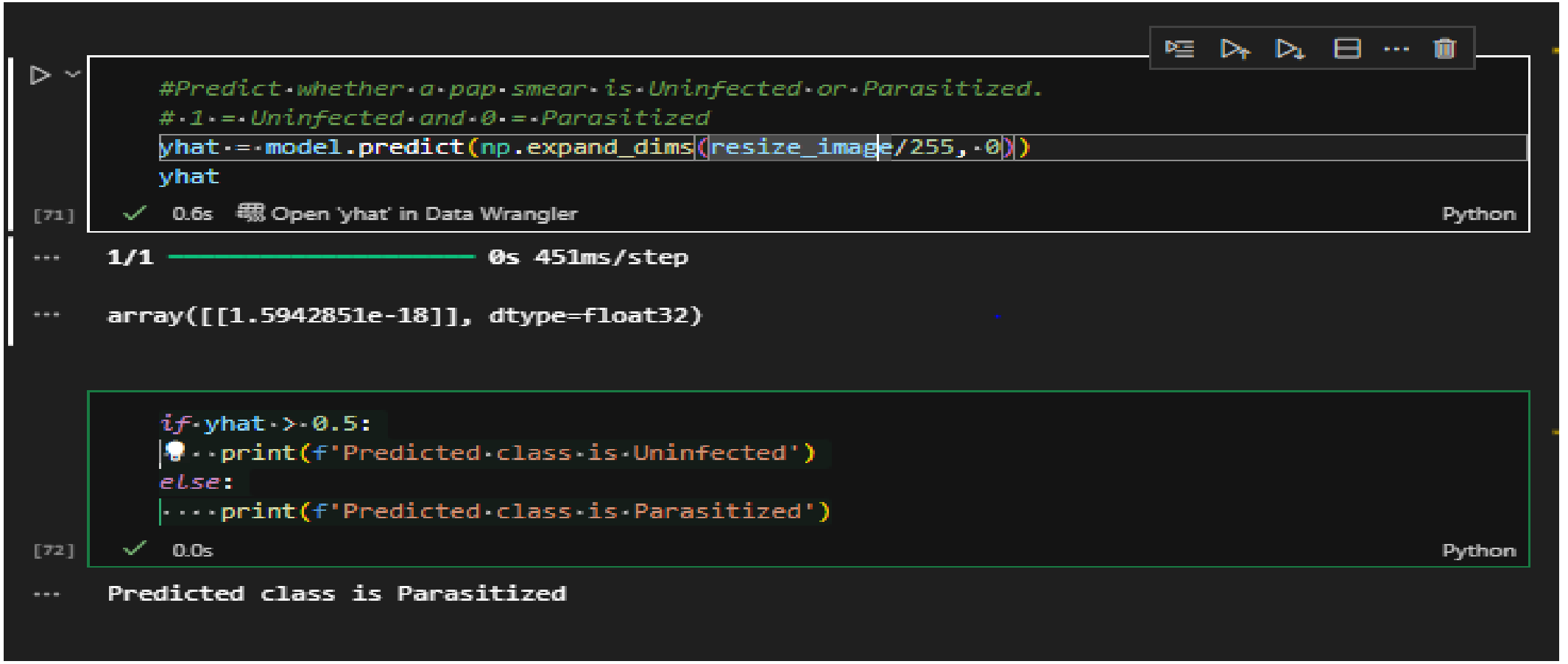
Testing the data

```
img = cv2.imread(r'C:\Users\PC\Documents\Data-Science-Tasks\Malaria-ImageClassification\mo
plt.imshow(cv2.cvtColor(img, cv2.COLOR_BGR2RGB))
plt.show()
```

[68] ✓ 1.0s Python



The Model can successfully predict the pap smear is Parasitized



Conclusion

There is a case of overfitting, and the mitigation strategy I took is early-stopping

The Model can predict whether a pap smear is Uninfected or Parasitized.

Thank you

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Medium Account: https://medium.com/@oliviaayora

GitHub Project: https://github.com/254Bit/Malaria-ImageCLassification