Lab Final

Subhosit

December 2020

1 Introduction

This is a final lab project that utilizes pretrained Resnet and finetune it to classify Butterflies and Moths

2 Results

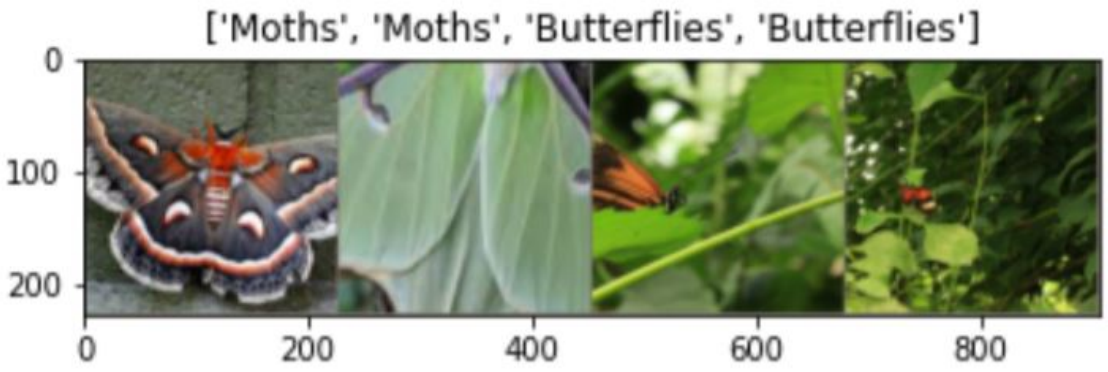


Figure 1: Figure shows sample butterfly and moth images from the dataset used to train

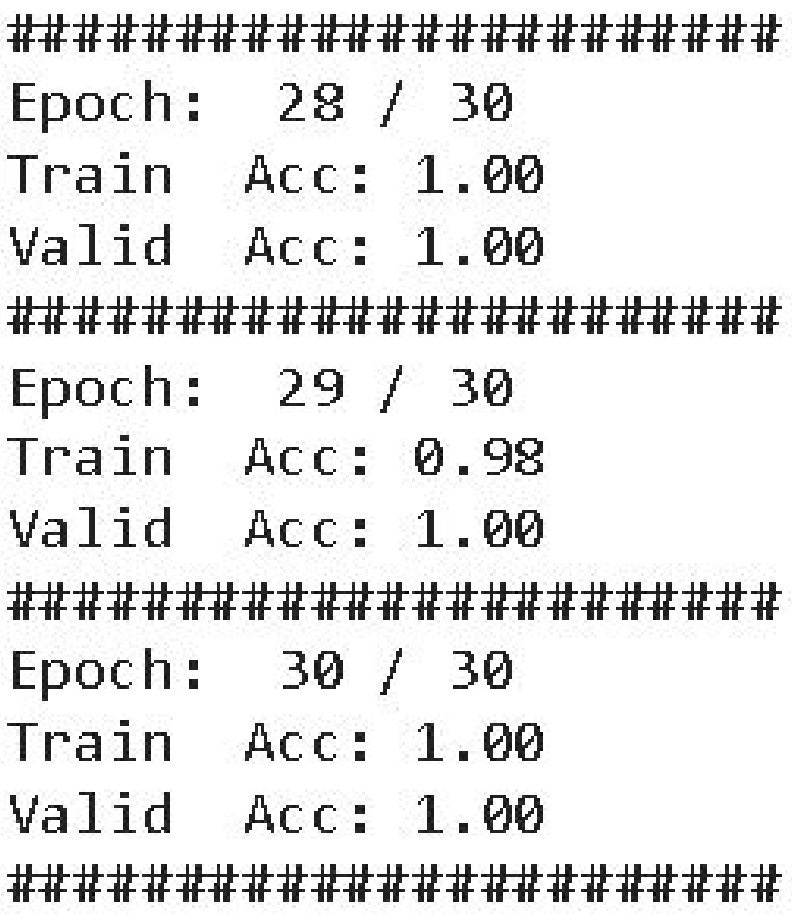
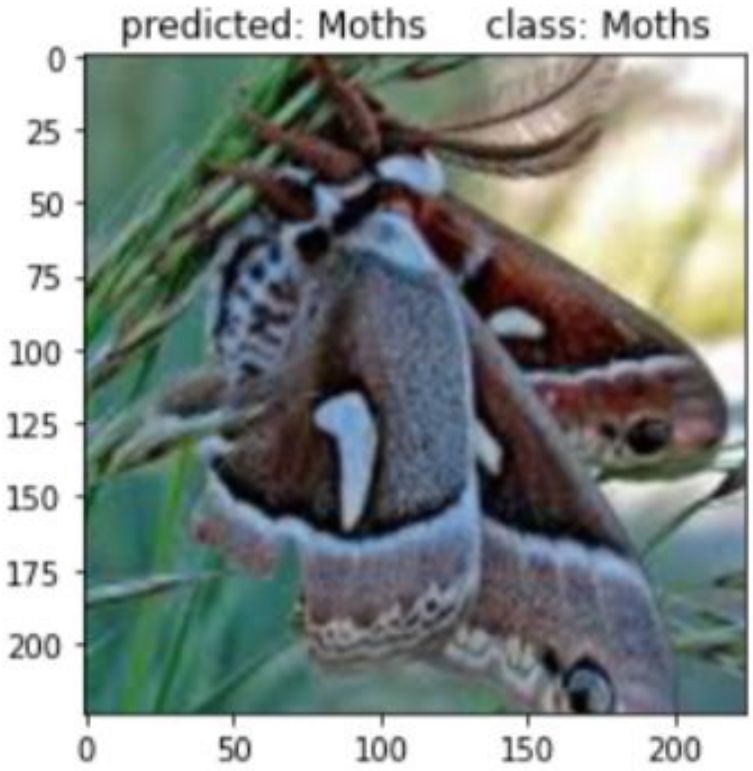
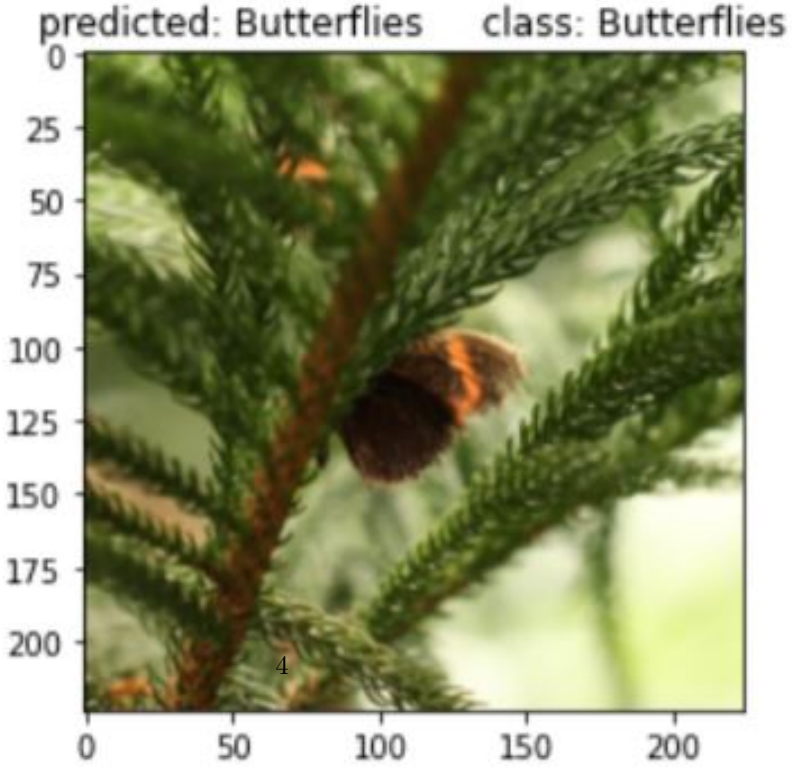
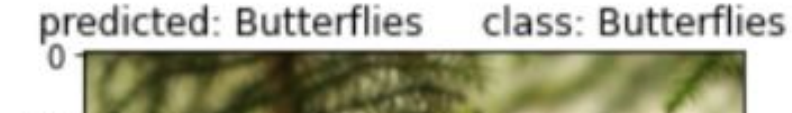


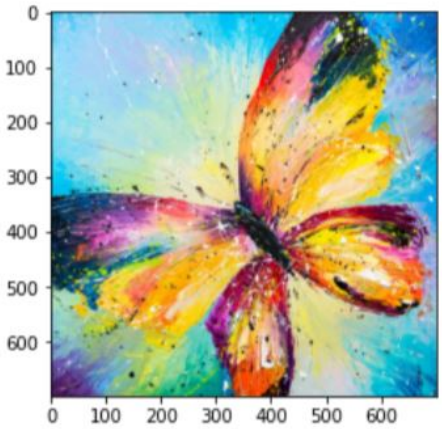
Figure 2: Shows accuracy achieved after 30 epochs run both on test and train datset


predicted: Moths class: Moths
0
25
50
75
100
125
150
175
200
0
50
100
150
200


predicted: Butterflies class: Butterflies
0
25
50
75
100
125
150
175
200
0
50
100
150
200


predicted: Butterflies class: Butterflies
0

```
image = io.imread('https://www.gallerytoday.com/41899/butterfly.jpg')
plt.imshow(image);
```




```
[24] img = apply_transforms(image).clone().detach().requires_grad_(True).to(device)
```

```
[26] outputs = model(img)
     preds = torch.max(outputs, 1)[1]
```

```
[27] print('predicted: ' + dataset_labels[preds])

     predicted: Butterflies
```

Figure 4: Testing ResNet capability on paintings. Unlike the flowers project our Resnet is good at detecting paintings of butterflies. Maybe this is because ResNet is only classifying between two species in this project. whereas in flowers project there were many different species to classify.

```
[35] cm[1,1] #True Positive

     10

[36] cm[0,1] #False Positive

     0

[37] cm[1,0] #False Negative

     0

[38] accuracy = (cm[0,0]+ cm[1,1])/20 # Accuracy
     print(accuracy)

     1.0

[39] precision = cm[1,1]/10  #Precision
     print(precision)

     1.0

[40] recall = cm[1,1]/(cm[1,1]+ cm[1,0]) #recall
     print(recall)

     1.0

     F_measure =(2*precision*recall)/(precision+recall)
     print(F_measure)

     1.0
```

Figure 5: Final Scores of ResNet performance, showing precision, recall and F values