

# TRANSFER LEARNING

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# GOAL

1

Implementing Transfer Learning using Google's Inception v3 and training it for Animals on Web dataset

2

Analyzing the accuracy of the model for varying amount of data and classes

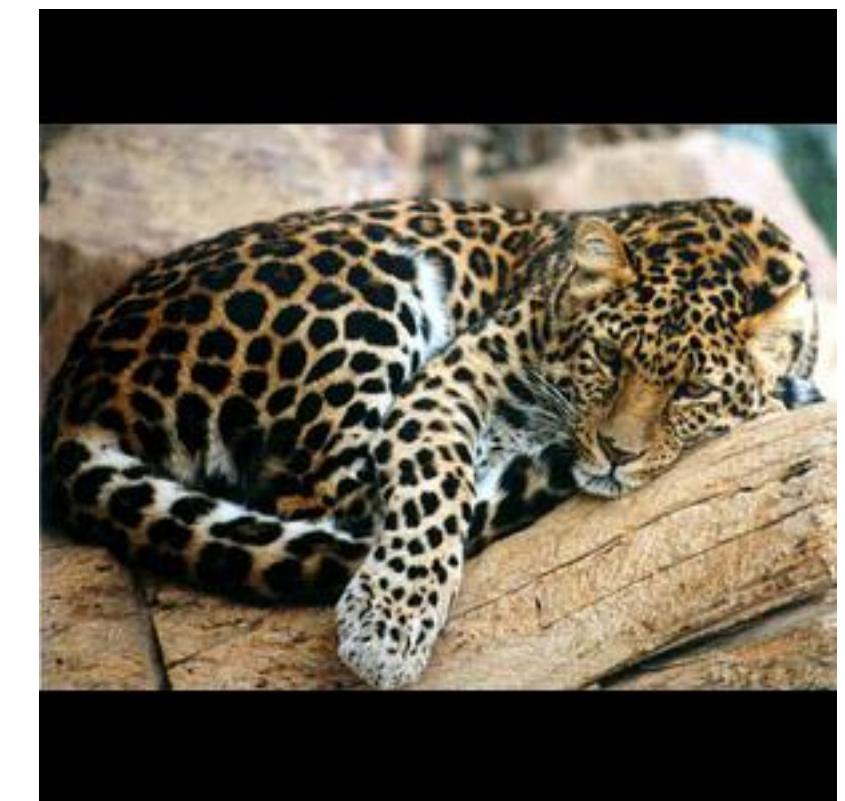
3

Time and Accuracy analysis between our model and training the Inception model from scratch for Animals on Web dataset

# DATA PREPROCESSING

Making 9 classes of **Animals on Web** ready for Google's Inception v3 (over 16k images)

- 1 Converting all the different files formats to jpeg
- 2 Resizing and padding the files to a resolution of 299 x 299



# DISTORTION

Training the model to cope with natural data



Crop



Scale



Flip



# RESULTS

# CONFIDENCE



```
leopard (score: 0.848937 )
giraffe (score: 0.0609134 )
monkey (score: 0.0169987 )
frog (score: 0.0148349 )
alligator (score: 0.014431 )
ant (score: 0.014057 )
dolphin (score: 0.0110906 )
penguin (score: 0.0095556 )
beaver (score: 0.0091819 )
```



```
alligator (score: 0.815673 )
leopard (score: 0.0466529 )
monkey (score: 0.022044 )
frog (score: 0.0219493 )
ant (score: 0.0215884 )
beaver (score: 0.0206687 )
giraffe (score: 0.0205339 )
dolphin (score: 0.0182061 )
penguin (score: 0.0126839 )
```

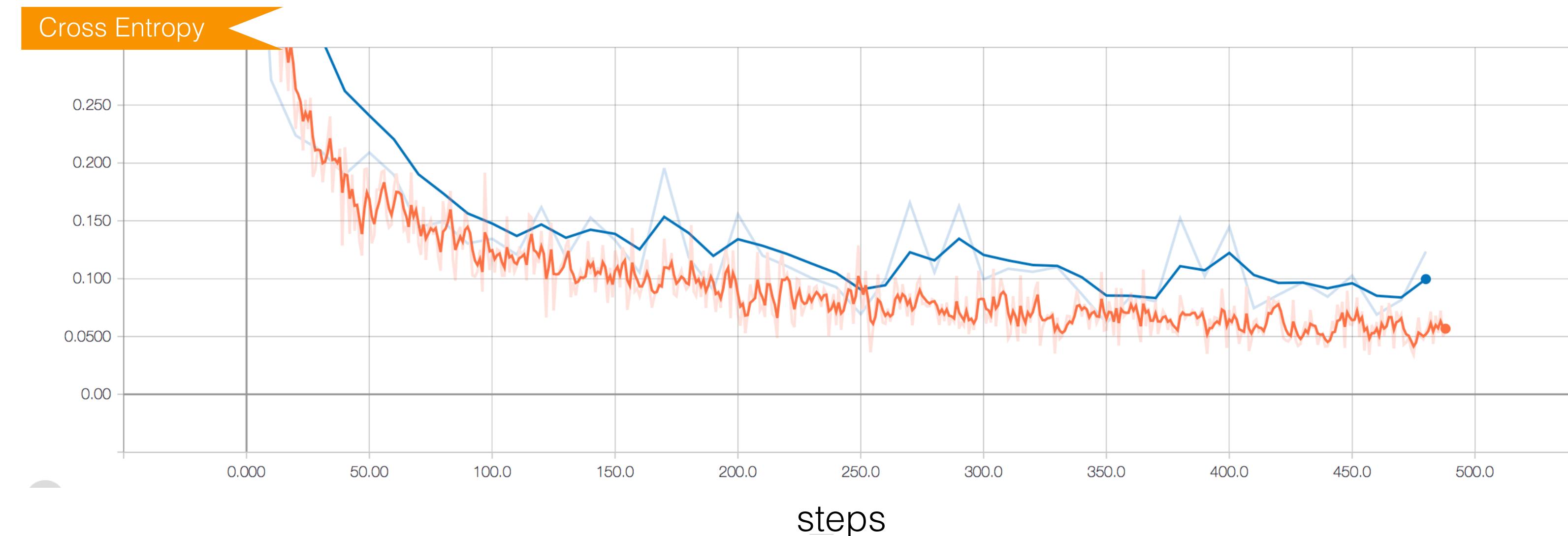
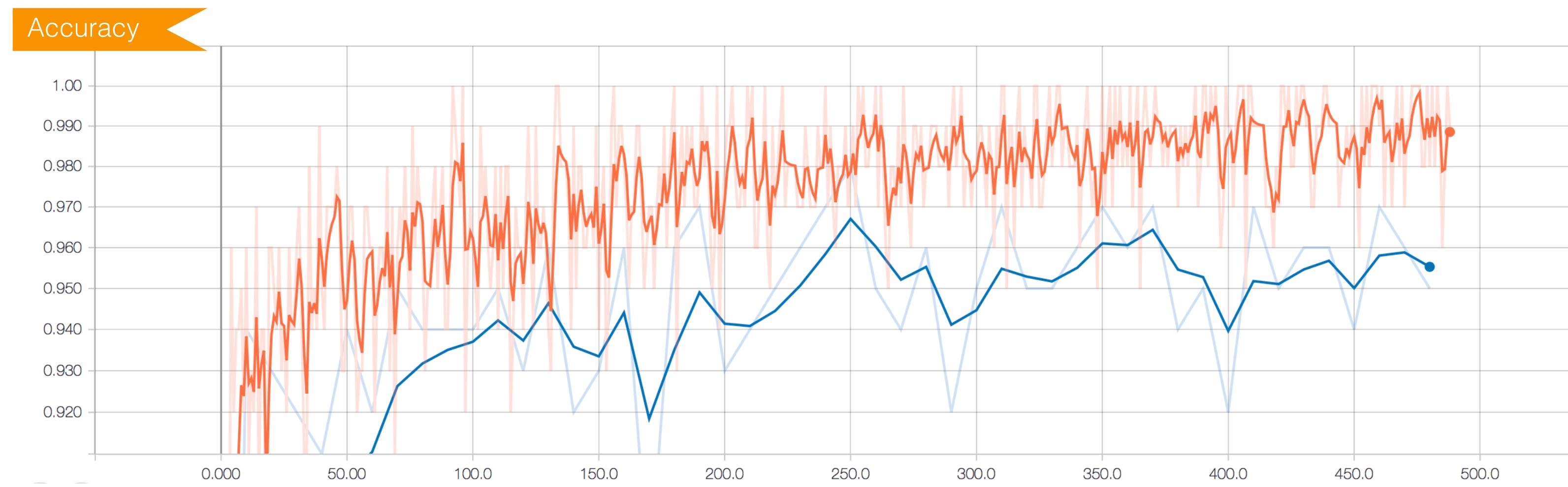


```
giraffe (score: 0.838444 )
leopard (score: 0.0963956 )
alligator (score: 0.0145426 )
beaver (score: 0.0098485 )
ant (score: 0.00973451 )
dolphin (score: 0.0091504 )
monkey (score: 0.00821851 )
penguin (score: 0.00685848 )
frog (score: 0.00680741 )
```



```
leopard (score: 0.139981 )
alligator (score: 0.129963 )
giraffe (score: 0.122523 )
frog (score: 0.12094 )
monkey (score: 0.117933 )
ant (score: 0.104893 )
penguin (score: 0.0997984 )
beaver (score: 0.0858829 )
dolphin (score: 0.078085 )
```

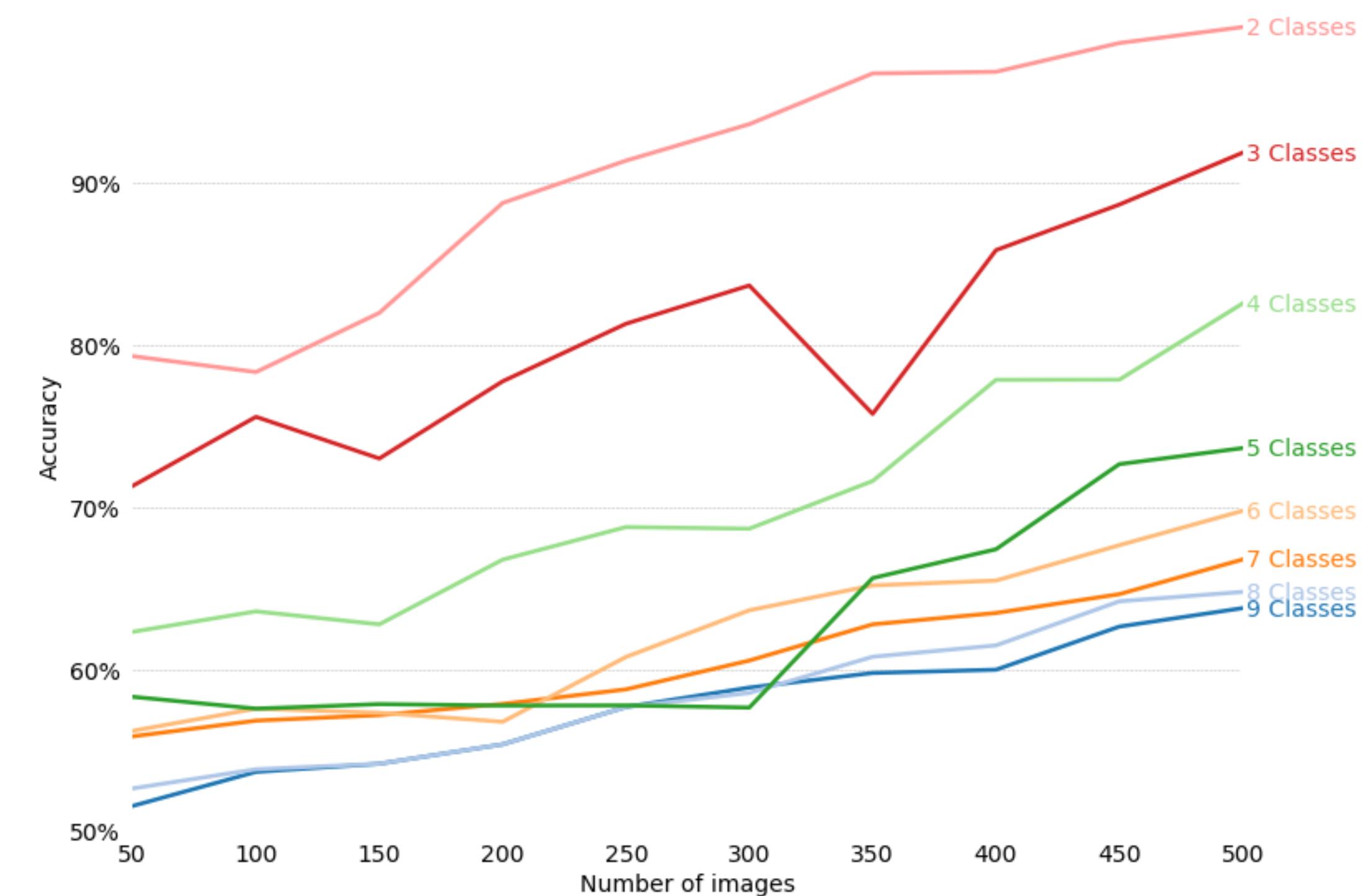
# TENSOR BOARD



# ACCURACY

## Analysis on varying amount of data

We retrained our model for wide range of cases. Feeding it with 50 images to 500 images for Binary classification to increasing Multi-Class classification till 9 different classes.



# **TRANSFER LEARNING**

**VS**

# **LEARNING FROM SCRATCH**

**work in progress....**