Transfer Learning

Transfer learning is a machine learning method where a model developed for a task is reused as the starting point for a model on a second task.

It is a popular approach in deep learning where pre-trained models are used as the starting point on computer vision and natural language processing tasks given the vast compute and time resources required to develop neural network models on these problems and from the huge jumps in skill that they provide on related problems.

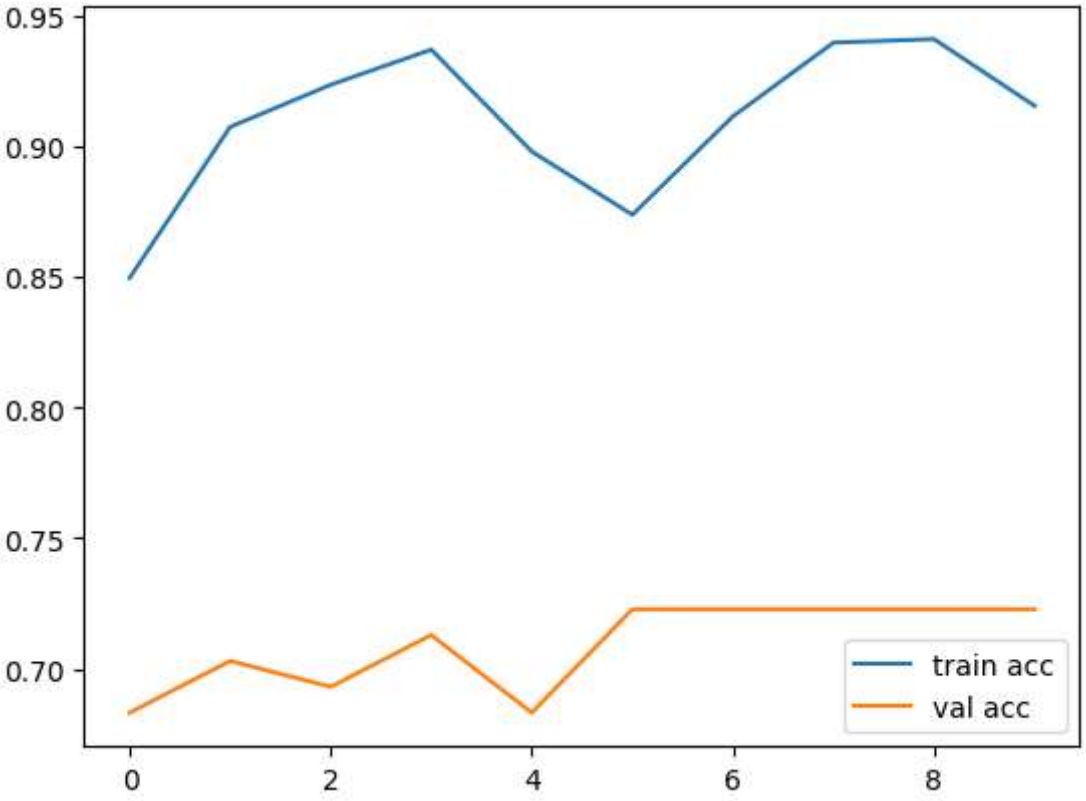
Inception V3

Inception v3 is a widely-used image recognition model that has been shown to attain greater than 78.1% accuracy on the ImageNet dataset. The model is the culmination of many ideas developed by multiple researchers over the years.

Summary

Steps followed are:

1. I choose to classify car brand classification problem.
2. Scrapped data from Google Images of four classes of cars.
3. importing the libraries, defining the image size, train,test,val paths.
4. Then,Choosed and Imported the InceptionV3 library and initialize input shape,weights and set Include_top to False.
5. set trainable weights to False.
6. Added Output layers,created a model object,compiled the model.
7. Then,Used the Image Data Generator to import the images from the dataset.
8. Training the model.



9. Train_accuracy was first it is 84% and it is moving from 89%-94%
10. val_accuracy was first it is 68% and it is moving from 68%-72%
11. Predicted multiple images of test set
12. links to the sources given below.
13. Accuracy is not upto the mark because of less data scrapped and i would have used more data to get good accuracy but unable to scrap more data.

Credits

1. https://machinelearningmastery.com/transfer-learning-for-deep-learning/ (https://machinelearningmastery.com/transfer-learning-for-deep-learning/)
2. https://keras.io/api/applications/ (https://keras.io/api/applications/)
3. https://www.youtube.com/watch?v=zBOavqh3kWU (https://www.youtube.com/watch?v=zBOavqh3kWU)
4. https://cloud.google.com/tpu/docs/inception-v3-advanced (https://cloud.google.com/tpu/docs/inception-v3-advanced)

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