**How to run experiments?**

1. Experiments can be run in the “Run Training” section.
2. Modify model\_index to choose an architecture model as follows:

0 > B0

1 > B1

2 > B2

3 > B3

4 > B4

5 > B5

6 > B6

7 > B7

1. Specify the batch size by modifying batch\_size as follows:

CIFAR-10 > 128

CIFAR-100 > 64

1. Modify the number of EPOCH by modifying max\_epoch.
2. Choose between CIFAR-10 and CIFAR-100 by modifying

dataloader\_train ,dataloader\_train\_val ,dataloader\_validation ,n\_classes = load\_dataset('CIFAR10',img\_size) as follows:

load\_dataset('CIFAR10',img\_size) >> CIFAR-10

load\_dataset('CIFAR100',img\_size) >>CIFAR-100

1. You will be able to obtain the accuracy plots and the number of parameters from the last 3 cells.

**Datasets**

**CIFAR-10** will be used to assess the EfficientNet architecture. It is the well-known deep learning data set of animals, birds, vehicles, airplanes and ships that is consisting of 50,000 training images of 10 classes. Each class in the training data set has 5,000 images. The testing data set consists of 10,000 images of the same 10 classes. Each class in the testing data set has 1000 images.

**CIFAR-100** As an extension of CIFAR10, we will also run the experiments on CIFAR100 which consists of 100 classes instead of 10, and of 60000 images.

Datasets are obtained through pytroch libraries.

**Implementation**

All the implementation is done in a single google Colaboratory file. Implementation and understanding were done using the support and architectures of

<https://github.com/aladdinpersson/Machine-Learning-Collection/blob/master/ML/Pytorch/CNN_architectures/pytorch_efficientnet.py>

<https://github.com/abhuse/pytorch-efficientnet>

<https://github.com/google/automl/tree/master/efficientnetv2>

https://www.youtube.com/watch?v=fR\_0o25kigM