

“Plant parts classification”

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Problem Statement:

To detect and classify image as plant into
43 categories using ml model

Image Preprocessing

I tried to preprocess images by removing blur image, inducing rotation, flip, translation but since they are increasing inference time so i didn't did any and trained it on basis of EfficientNet B0 and ImageDataset class .

Used torchvision.transforms to resize images and convert them to tensors.

Model comparison and fine tuning

I experimented with several models like ResNet, MobileNet, and EfficientNet, and by considering inference time and model and cross-validation accuracy i choosed EfficientNet

For fine tuning of model i applied concepts such as cyclic learning rate scheduler and early stoppage and found out that for LR = 0.001 and epoch = 5 EfficientNet is giving best results.

i didn't included code for these two methods and cross-validation (which i did using 5 folds) as they are increasing run time as well as inference time.

As i decreased batch size(1, 8) our accuracy decreases by large difference, batch size of 32 is giving good result.

RESULT

I got accuracy of 0.98 and f1 score as 0.97

Refrence

Aurelien-Geron-Hands-On-Machine-Learning-with-Scikit-Learn-Keras-and
Tensorflow_Concepts-Tools-and-Techniques-to-Build-Intelligent-Systems-
OReilly Media-2019

https://github.com/sonhm3029/Bad_Guy_Classification_EfficientNet

THANKU.
