Assignment

In this assigment you're going to use the pretrained network SqueezeNetv1.2 (~ 5 Mb)

SqueezeNet: AlexNet-level accuracy with 50x fewer parameters and <0.5MB model size (https://arxiv.org/abs/1602.07360)

Your tasks are:

1. go to https://github.com/miaow1988/SqueezeNet_v1.2 and download the 'symbol.json' and '.params' files (there is not a 'synset.txt' file! so don't use these lines, Hint: just comment these lines).

- Install MXNet v1.5 (hint: create a new conda environmet with python 3, pip install mxnet==1.5.1) and follow the same steps of the lecture (part: *Using pre-trained models as feature extractors*). Find the flatten output layer and create a feature extractor (hint: It should be a numpy array of 1000 elements).

- Download the dogs versus cats *training folder* from https://www.kaggle.com/c/dogs-vs-cats-redux-kernels-edition/data (Remember the number of images is 12500 for each class).

- Extract the array of features for different number of images (N: 10, 100, 500, 1000, also 5000 and 12500) and for each value train your favorite binary classifier (only one!!!) using GridSearch to optimize some hyperparameters. Consider to use https://notebooks.csc.fi if you have computational limitations.

- Report the accuracy for each value of N and the computational time during the training step.

2. Repeat all previous steps using MobileNet V2 (https://github.com/KeyKy/mobilenet-mxnet). How the two networks compare?

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Note: At least for N= 5000 and 12500 it can take some time in your computer, depending of your resources. The time can largely increases depending of your chosen classifier. *Deadline 7 of november of 2020 23:59*.