

The American University in Cairo

Department of Computer Science and Engineering

CSCE 4930 – Practical Machine Deep Learning

Dr. Mohamed Moustafa	Assignment 3 [10%]	Fall 2017
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Implement a convolutional neural network that can **best** classify the 257 different classes in the Caltech256 dataset.

Details:

- The caltech256 dataset can be downloaded from http://www.vision.caltech.edu/Image_Datasets/Caltech256/
- Sorting the image files alphabetically in an increasing order, keep the first 15 images from each class as your validation set. (Total will be $15 \times 257 = 3855$ images). The remaining images *can* be used for training.
- Train your best neural network using the training set.

You are expected to deliver: (one file: first.lastname.assignment2.zip)

- source code of your implementation for both training and testing your best network. **[2%]** (you can use ready made packages, e.g., Caffe and Tensorflow)
- short report containing:
 - a description of your best network architecture and your training parameters, including the random number seed (if any) as your training results have to be reproducible. **[3% competitive. Simplest network architecture with minimum number of weights will receive 3% and others will get credit relative to how far their number of weights are from the simplest one] (minimum acceptable average classification accuracy is 50%)**
 - a plot of loss (Y axis) versus number of training iterations (X axis) showing decreasing (training and validation) losses and highlighting when did you stop the training. **[1%]**
 - Average Correct Classification Rate Top-5 using the validation set. ACCR5 is the number of correctly classified images (*within the top 5 scores*) divided by the total number of validation images. **[4% competitive. Best student will receive 4% and others will get credit relative to how far their ACCRs are from the best ACCR]**