

Practicing Convolutional Neural Network CIFAR 10 challenge Submission due 12/18/2020 @ 4:59 pm

This is an open-ended challenge, to try and tackle a small yet challenging classification problem with deep neural nets.

1. Download the CIFAR-10 dataset <https://www.cs.toronto.edu/~kriz/cifar.html>
2. Your goal is to build the best classifier you can for it. The leading methods (http://rodrigob.github.io/are_we_there_yet/build/classification_datasets_results.html#43494641522d313030) currently achieve ~ 96.5% accuracy.
3. The CIFAR-10 dataset consists of 60000 32x32 color images in 10 classes, with 6000 images per class. There are 50,000 *training images* and 10,000 *test images*.
4. Split the *training images* into a train set and a validation set. (Leave the test images for step 7)
5. Iteratively train different networks on the train set. The goal is to build the best image classifier you can.
6. Test each classifier you design on the validation set.
7. Select the network that produced the best result on the validation set and run it on the test images.
- 8. Note that you can only run on the test set *ONCE* to report your final result!**
9. You can work with any neural net you choose.
10. You can try any architecture you wish, with any regularization (or without).

In your report submission, explain:

1. What library you work with (Keras, TensorFlow, etc)
2. Describe the net architecture you built.
3. State your regularization and optimization techniques.
4. Add the graph of the train and validation loss during training, and your final results on the test set.
5. Please also document your code (for all stages – training, validation and test).