

Started on	Tuesday, 23 April 2024, 8:02 AM
State	Finished
Completed on	Tuesday, 23 April 2024, 8:09 AM
Time taken	6 mins 58 secs
Marks	4.42/6.00
Grade	7.36 out of 10.00 (73.61%)
Feedback	Make sure your read the feedback from all the questions!

Question 1

Correct

Mark 1.00 out of 1.00

True or False ?

The main objective of Data Augmentation is to increase generalization by transforming training examples at each training epoch.

Select one:

- ☒ True ✓
- ☐ False

The objective of Data Augmentation is indeed to increase generalization. The underlying idea is to sample the data from a larger distribution than the mere samples from the training dataset, by slightly modifying each training sample dynamically during training, therefore actually considering small neighborhoods around each training sample.

The correct answer is 'True'.

Question **2**


Correct

Mark 1.00 out of 1.00

True or False ?

Self-Supervised Learning requires manual human annotations to get labels for learning.

Select one:

☐ True☒ False 

Self-Supervised Learning is a paradigm of learning from data itself without human labels, the labels and the task to solve are created from the data itself in order to learn a model in a supervised manner.


The correct answer is 'False'.

Question **3**

Correct

Mark 1.00 out of 1.00

Data augmentation should be applied...

- ☐ a. On the validation set
- ☒ b. On the training set 

Your answer is correct.

Never apply DA to the validation set ! This would result in a very unstable estimate of the generalization on the validation set. The whole point of using a validation set is to monitor how the network generalizes, on the exact same data at each epoch, without explicitly using this data for training. Therefore, it is very important that it is always the same set of data that is used, to be able to compare validation performance across all epochs.

The correct answer is: On the training set

Question 4

Incorrect

Mark 0.00 out of 1.00

The effects of Data Augmentation.

In general, compared to a run without Data Augmentation, what are the expected effects of Data Augmentation ?

- ☒ a. Increased best training accuracy ✗ DA will usually reduce the best achievable training accuracy, because the examples seen during training are transformed, so it's more difficult to memorize all of them
- ☐ b. Increased validation accuracy
- ☐ c. Best validation accuracy obtained after less training epochs.

Your answer is incorrect.

The correct answer is: Increased validation accuracy

Question 5




Partially correct

Mark 0.75 out of 1.00

When Data Augmentation goes wrong ?

You have successfully trained a network for image classification on 10 classes, without DA, and obtain a best validation accuracy of 85%. When training the same network by adding only a RandomCrop, the best accuracy drops to 83%.

Check answers below that correspond to useful experiments that could help understand this effect.

- ☐ a. Launch a few more training experiments with DA
- ☒ b. Check the parameters of the Random Crop operator  This is related to question 1 : if cropping is done on a too small region and the rest of the image is padded, there is no information left for training.
- ☒ c. Launch a few more training experiments without DA  This is the "question piège". Yes, training more runs without DA can help, because a drop from 85 to 83 may not be very significant, depending on the dataset ; doing more runs without DA will give a better estimate of the "true" accuracy without DA, which might be 84 % (+/- 1%)
- ☒ d. Check the images that enter the network at each batch.  It's always a very good idea to check the effect of DA on the samples, in order to have an idea whether there is enough information left to run.

Your answer is partially correct.



The correct answers are: Check the images that enter the network at each batch., Check the parameters of the Random Crop operator, Launch a few more training experiments without DA, Launch a few more training experiments with DA

Question **6**

Partially correct

Mark 0.67 out of 1.00

When are these regularization techniques applied ?

- ☒ a. BatchNorm is applied during training  During training, BatchNorm calculates batch statistics to normalize data, it accelerates training and increases generalization.
- ☐ b. BatchNorm is applied during validation
- ☒ c. Dropout is applied during training  Dropout is used for training so that neurons will not learn redundant information of data
- ☐ d. Dropout is applied during validation

Your answer is partially correct.

You have correctly selected 2.

The correct answers are: Dropout is applied during training, BatchNorm is applied during training, BatchNorm is applied during validation