

Unit 6 - Week 5

Course outline

How does an NPTEL online course work?

Week 1

Week 2

Week 3

Week 4

Week 5

CNNs-Part 1

CNNs-Part 2

Transfer learning with pretrained CNNs

Transfer learning with TF hub

Image classification and visualization

Quiz : Assignment 5

Week 5 Feedback

Week 6

Week 7

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Assignment 5

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-03-04, 23:59 IST.

- 1) Your first task is to perform image classification using convolutional neural networks on the CIFAR10 dataset. Please visit [this](#) notebook for answering the questions 1 to 5. You are advised to run the notebook with GPU as the hardware accelerator. You can change this setting in the Edit > Notebook settings. Build a convolutional neural network with the architecture mentioned in the notebook and train the model for 10 epochs. What is the range of test accuracy of the model? **1 point**
- 65-70
 80-85
 75-80
 70-75
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
65-70

- 2) Remove the max pooling layers from the above architecture and re-train the model for 10 epochs. Does the test accuracy get better or worse? **1 point**
- Better
 Worse
 Can't say

No, the answer is incorrect.
Score: 0

Accepted Answers:
Worse

- 3) After removing the pooling layer in the architecture of the model, how did the number of parameters of the model change? Try and think of why this happened. **1 point**
- Reduced by 1128448
 Reduced by 94,496
 Increased by 1127448
 Increased by 94,496
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
None of the above

- 4) We have now trained a convolutional neural network. But let us check if we intuitively understand how filters work. What does the following filter do?
Filter = $[[1/9, 1/9, 1/9], [1/9, 1/9, 1/9], [1/9, 1/9, 1/9]]$ **1 point**
- Sharpen the image
 Blur the image
 Find vertical edges
 Find horizontal edges

No, the answer is incorrect.
Score: 0

Accepted Answers:
Blur the image

- 5) Your second task is to perform flower classification using transfer learning taught this week. There are two parts: (1) pretrained base mode (2) Fine-tuning the model. Please visit [this](#) notebook for answering the following questions. You need to understand the code and try to fill up the empty cells in the notebook.
What is the shape of one batch of image_data? **1 point**
- [30, 160, 160, 3]
 [160, 160, 3, 30]
 [160, 160, 30, 3]
 [160, 30, 160, 3]

No, the answer is incorrect.
Score: 0

Accepted Answers:
[30, 160, 160, 3]

- 6) What is the shape of a new block of features converted by the feature extractor for each image? **1 point**
- [5, 5, 1280]
 [5, 5, 512]
 [3, 3, 512]
 [3, 3, 1280]

No, the answer is incorrect.
Score: 0

Accepted Answers:
[5, 5, 512]

- 7) What is the total number trainable *TF* variables in the model (part-1)? **1 point**
- 1
 2
 37
 190
 311

No, the answer is incorrect.
Score: 0

Accepted Answers:
2

- 8) What is the total number of trainable parameters in this model (part-1)? Select the order of it: **1 point**
- 100
 1000
 10000
 100000
 1000000

No, the answer is incorrect.
Score: 0

Accepted Answers:
1000

- 9) What is the total number trainable *TF* variables in the model (part-2)? **1 point**
- 1
 2
 4
 37
 190

No, the answer is incorrect.
Score: 0

Accepted Answers:
4

- 10) What is the total number of trainable parameters in this mode (part-2)? Select the order of it: **1 point**
- 100
 1000
 10000
 100000
 1000000
 10000000

No, the answer is incorrect.
Score: 0

Accepted Answers:
1000000

- 11) Let the validation accuracy in part-1 be x and validation accuracy in part-2 be y (both after training is done) . The value $|y-x|$ lies between? **1 point**
- 0.0 to 0.1
 0.1 to 0.2
 0.2 to 0.3
 0.3 to 0.5

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.0 to 0.1