Tests & Quizzes

Worksheet 04 - CIFAR type prediction challenge

Return to Assessment List

Part 1 of 1 -   10.0 Points

Question 1 of 1

10.0 Points

You are given CIFAR-type training data of 6000 images picturing either cats, dogs or frogs. The data consists of training images (**x_train**) with associated labels (**y_train**) in {0=cat,1=dog, 2=frog} and an unlabeled test set (**x_test**). Your task is to train a neural network model to predict labels from images. As a submission, please upload your prediction of labels for the test set (**x_test**).

The npz-File is in a split zip archive (*prediction-challenge-02-data.zip*, *prediction-challenge-02-data.z01*) which first needs to be unpacked.

For the presentation, be prepared to show your code, explain how you prepared the data, how you chose the network architecture and other hyperparameters, how you validated the model, and show the convergence of the training error. To load and visualize the data as well as save your prediction, please refer to the following code snippet:

```python
import numpy as np
import matplotlib.pyplot as plt


with np.load('prediction-challenge-02-data.npz') as fh:
    x_train = fh['x_train']
    y_train = fh['y_train']
    x_test = fh['x_test']

# TRAINING DATA: INPUT (x) AND OUTPUT (y)
# 1. INDEX: IMAGE SERIAL NUMBER (6000)
# 2/3. INDEX: PIXEL VALUE (32 x 32)
```

```
# 4. INDEX: COLOR CHANNELS (3)
print(x_train.shape, x_train.dtype)
print(y_train.shape, y_train.dtype)

# TEST DATA: INPUT (x) ONLY
print(x_test.shape, x_test.dtype)

# TRAIN MODEL ON x_train, y_train

# PREDICT prediction FROM x_test

# MAKE SURE THAT YOU HAVE THE RIGHT FORMAT
assert prediction.ndim == 1
assert prediction.shape[0] == 300

# AND SAVE EXACTLY AS SHOWN BELOW
np.save('prediction.npy', prediction)
```

Use your trained model to predict the labels for the test data. Store the prediction as a one-dimensional numpy.ndarray and upload your prediction file.

Please note that you need to use exactly the shown file format, file name, and array shape as shown in the code snippet. Otherwise, we might not be able to correctly process your submission.

Please note that all members need to submit their own prediction or they won't be awarded points.

For this prediction, we will use the following scheme:

accuracy	points
$\geq 45\%$	5
$\geq 55\%$	7
$\geq 65\%$	10

prediction-challenge-02-data.z01   20480 KB

prediction-challenge-02-data.zip   13897 KB

prediction.npy (2.53 KB)

- Whiteboard-Startseite
- Klausurübersicht
- Räume
- Site Browser
- Lehr- und Studiumsplanung
- Vorlesungsverzeichnis
- Accessibility Information

- Powered by Sakai