**CS5720**

**Neural Networks & Deep Learning - ICP-3**

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**Github Link**: <https://github.com/csk17/NNDL_ICP-7>

**Lesson Overview:**

In this lesson, we are going to discuss Image classification with CNN.

**Use Case Description:**

Image Classification with CNN

1. Training the model
2. Evaluating the model

**Programming elements:**

1. About CNN
2. Hyperparameters of CNN
3. Image classification with CNN

**In class programming:**

1. Follow the instruction below and then report how the performance changed.(apply all at once)

* Convolutional input layer, 32 feature maps with a size of 3×3 and a rectifier activation function.
* Dropout layer at 20%.
* Convolutional layer, 32 feature maps with a size of 3×3 and a rectifier activation function.
* Max Pool layer with size 2×2.
* Convolutional layer, 64 feature maps with a size of 3×3 and a rectifier activation function.
* Dropout layer at 20%.
* Convolutional layer, 64 feature maps with a size of 3×3 and a rectifier activation function.
* Max Pool layer with size 2×2.
* Convolutional layer, 128 feature maps with a size of 3×3 and a rectifier activation function.
* Dropout layer at 20%.
* Convolutional layer,128 feature maps with a size of 3×3 and a rectifier activation function.
* Max Pool layer with size 2×2.
* Flatten layer.
* Dropout layer at 20%.
* Fully connected layer with 1024 units and a rectifier activation function.
* Dropout layer at 20%.
* Fully connected layer with 512 units and a rectifier activation function.
* Dropout layer at 20%.
* Fully connected output layer with 10 units and a Softmax activation function

Did the performance change?

1. Predict the first 4 images of the test data using the above model. Then, compare with the actual label for those 4 images to check whether or not the model has predicted correctly.
2. Visualize Loss and Accuracy using the history object.

**Solution:**

* These are the output & result for the following:

Graphical user interface, text, application

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