GITHUB: <https://github.com/lxb77340/Assignment3_700747734_Lohith_Reddy_Buthalapalli_NeuralNetworks>

Video Link: [https://drive.google.com/file/d/1Ha0DmzORkdI3byylUnKsPMp6fDmnVkRx/view?usp=sharing](700747734_LohithReddy_Buthalapalli_Assignment3.docx)

**Deep Learning Image Classification with CNN**

**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.Created the model with the given specification..

2.Compiled the model.

3. Fit the training data into the model.

4. Evaluated the model

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A computer screen shot of a program

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2. 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.

Ans

1. Predicted the first 4 images of the test data using the above model.

2. Converted the predictions to class labels

3. Converted the actual labels to class labels.

4. Printed the Predicted labels and actual labels.

3. Visualize Loss and Accuracy using the history object

Ans:

1.Visualized the Loss and Accuracy using the history object.

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