

NN & DeepLearning : Image Classification with CNN_ICP8

Lesson Overview:

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

Use Case Description:

LeNet5, AlexNet, Vgg16, Vgg19

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. Tune hyperparameter and make necessary addition to the baseline model to improve validation accuracy and reduce validation loss.
2. Provide logical description of which steps lead to improved response and what was its impact on architecture behavior.
3. Create at least two more visualizations using matplotlib (Other than provided in the source file)
4. Use dataset of your own choice and implement baseline models provided.
5. Apply modified architecture to your own selected dataset and train it.
6. Evaluate your model on testing set.
7. Save the improved model and use it for prediction on testing data
8. Provide plot of confusion matrix
9. Provide Training and testing Loss and accuracy plots in one plot using subplot command and history object.
10. Provide at least two more visualizations reflecting your solution.
11. Provide logical description of which steps lead to improved response for new dataset when compared with baseline model and enhance architecture and what was its impact on architecture behavior.

** Follow the rubric guidelines.

Submission Guidelines:

1. Once finished document your code and make sure all parts of the assignments are completed.
2. Push your code to your GitHub repo and update the ReadMe file, add your info.
3. Submit the assignment.
4. Present your work in class time to proof the execution and complete submission.

After class submission:

1. Once finished document your code and make sure all parts of the assignments are completed.
2. Push your code to your GitHub repo and update the ReadMe file, add your info.
3. Submit the assignment before the deadline.
4. Record a short video (1~3) minute, proof of execution and complete assignment.
5. Add video link to ReadMe file.

Evaluation Criteria:

1. Completeness of Features
2. Code Quality (https://en.wikipedia.org/wiki/Best_coding_practices)
3. Time
4. Feedback Submission

Note: *Cheating, plagiarism, disruptive behavior and other forms of unacceptable conduct are subject to strong sanctions in accordance with university policy.*