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Course Content

Project Description - Deep Learning

Submission type	:	File Upload
Due Date	:	Nov 22, 1:30 AM
Total Marks	:	60
Available from	:	Nov 14, 12:30 PM

Description

Welcome to the project on **Deep Learning**. In this project, we aim to apply neural network algorithms such as artificial neural networks and convolutional neural networks to identify the digits in the images.

- This project comprises of two parts, first on ANNs and second on CNNs
- Two notebooks are shared for the analysis
- Many parts of the notebooks are omitted and replaced with questions. You are expected to fill in the gaps as per the instructions/questions.
- The focus of most of the questions is to apply algorithms, write observations, and extract insights.

Key Points to Note:

- Please do not change the variable names to avoid hassles while executing the code.
- You can raise your issues on the project discussion forum on Olympus.
- The notebook should be run from start to finish in a sequential manner before submission. It is preferable to remove all warnings and errors before submission.
- You need to submit two python notebooks, one for each part, in HTML format.
- The naming convention for the notebooks will be FirstnameLastname_ANN.html for the first part and FirstnameLastname_CNN.html for the second part.

Happy Learning!

Scoring guide (Rubric) - Deep Learning



Criteria	Points
Part 1 - Question 1 Normalize the train and test data	2
Part 1 - Question 2 Build and train a ANN model as per the above mentioned architecture	10
Part 1 - Question 3 Write your observations on the below plot	2
Part 1 - Question 4 Build and train the new ANN model as per the above mentioned architecture	10
Part 1 - Question 5 Write your observations on the below plot	2
Part 1 - Question 6 Print the classification report and the confusion matrix for the test predictions. Write your observations on the final results	4
Part 2 - Question 1 Complete the below code to visualize the first 10 images from the training data	1
Part 2 - Question 2 One-hot encode the labels in the target variable y_train and y_test	2
Part 2 - Question 3	

Part 2 - Question 3
Build and train a CNN model as per the
above mentioned architecture 10

Part 2 - Question 4
Write your observations on the below plot 2

Part 2 - Question 5
Build and train the second CNN model as
per the above mentioned architecture 10

Part 2 - Question 6
Write your observations on the below plot 2

Part 2 - Question 7
Make predictions on the test data using the
second model 1

Part 2 - Question 8
Write your final observations on the
performance of the model on the test data 2

Points 60

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