IT416: TOPICS IN DEEP LEARNING

Assignment 7 : Designing different types of Autoencoders and understanding the concept of weight tying

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1 LEARNING OUTCOME

At the end of this assignment you will learn the applications of autoencoders and the effect of weight tying in the training process

2 PROBLEM DESCRIPTION

Implement Overcomplete and Undercomplete Autoencoders to solve the problem of Image denoising.

3 IMPLEMENTATION

3.1 Task

- Design Overcomplete and Undercomplete Autoencoders by varying the no. of hidden layers (3-5)
- Plot the required curves to indicate training process
- Use Weight tying concept and inspect its effect on the training speed. Comment on it.
- You can use any kind of optimizers, regularizations for this exercise to get good results.
- Also use different kind of weight initializations to notice any performance improvement.

3.2 Points to note

- Visualizations with Explanation is the best way to justify your conclusion

3.3 Instructions

- Implement the algorithms using Tensorflow and Keras.
- Use MNIST fashion dataset for denoising problem.

4 SUBMISSION

- You have to submit your assignment in Google Colab notebook (.ipynb file) with proper comments and explanation of your approach.

- Your filename should be named as **LabAssignment7_StudentId** . If your id is 202011001 then filename will be **LabAssignment7_202011001.ipynb**

- The submission deadline for this assignment is **20th November 2020 11:59 pm**