**NN&DeepLearning\_icp\_6: Autoencoders**

**Ganesh Konagalla (700756412)**

Applications of Autoencoder

GitHub Link: https://github.com/ganeshkonagalla123/Neural-Networks/tree/main/Assignment6

Lesson Overview: In this lesson, we are going to discuss types and applications of Autoencoder.

**Programming elements:**

1. Basics of Autoencoders   
2. Role of Autoencoders in unsupervised learning   
3. Types of Autoencoders   
4. Use case: Simple autoencoder-Reconstructing the existing image, which will contain most important features of the image   
5. Use case: Stacked autoencoder.

**In class programming:**   
  
1. Add one more hidden layer to autoencoder   
2. Do the prediction on the test data and then visualize one of the reconstructed version of that test data. Also, visualize the same test data before reconstruction using Matplotlib   
3. Repeat the question 2 on the denoisening autoencoder   
4. plot loss and accuracy using the history object.

A screenshot of a computer

Description automatically generated

A white background with black and blue text

Description automatically generated

Addition of one more hidden layer to autoencoder. Also, prediction on the test data.  
Visualization of one of the reconstructed version and Visualization using same test data before reconstruction using Matplotlib

A computer screen shot of text

Description automatically generated

A white screen with text

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

Repeating the question 2 on the denoisening autoencoder.  
Prediction on the test data.Visualization of one of the reconstructed version

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

Visualization using same test data before reconstruction using Matplotlib

A screenshot of a computer

Description automatically generated

A group of squares with numbers and letters

Description automatically generated with medium confidence

Plotting loss and accuracy using the history object.

A white background with text

Description automatically generated

A graph of training loss and training accuracy

Description automatically generated