IMAGE COMPRESSION OVER MNIST USING DEEP AUTO ENCODER

ABSTRACT

Big enterprises and organisations store a vast amount of images. The current technologies of image compression use similar characteristics within an image to compress the image. Deep Auto encoder neural network trains on a large set of images to figure out similarities between the images in the set. The network then uses those similarities to compress them and represent them using fewer codes than usually possible from current compression techniques.

An auto-encoder is a neural network that learns to map from the input layer to a hidden layer or layers, and back to the output layer. This is done without losing too much detail from the inputs.

This document builds on to demonstrate how Deep Auto encoder neural network can be used to train on and compress large sets of images. MNIST handwritten digits dataset is used as training and testing set. 28 x 28 image is converted to a vector of size 784 x 1 which is then fed to the network. The 784 x 1 vector is then gradually compressed in each iteration of the training phase of the network. Once the vector is compressed, the middle hidden layer of the network will hold a compressed feature vector which can be stored or transmitted. This compressed feature vector later can be converted back to obtain a near approximation of the original image.

TEAM 6