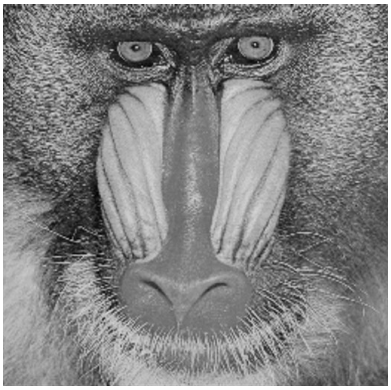
Lossy Image Compression using DNN

DESCRIPTION
Training data :1000000 random raining examples of CIFAR-10.
Test data : Standard Images (Lena- Mandrill- Cameraman- boats- Peppers)
Method: Artificial Neural Nets to detect unsupervised features

Note: I have tried to use not very deep neural nets because of cost of computations on CPU

Original Images:




COMPRESSION RATIO 4:1

Training Time:3 hours
Layers: IN-512-16-512-OUT

MSE PLOT

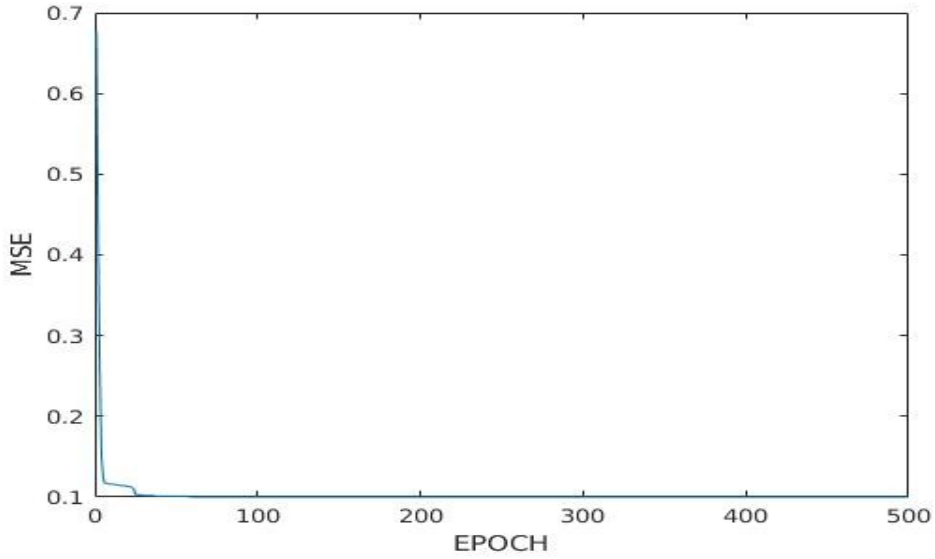
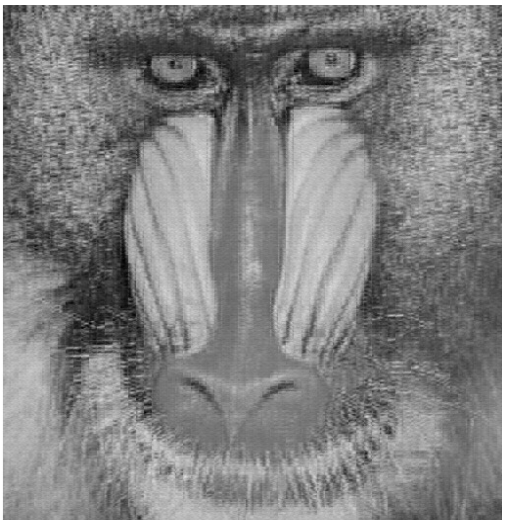
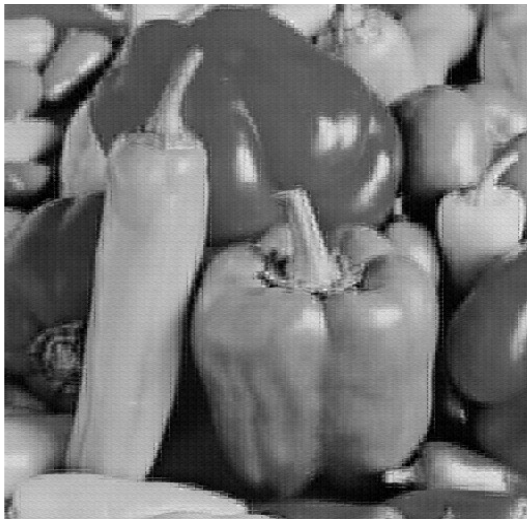


Table of PNSR

Image	My Model	Reference Paper Model
Lena	27.1945	30.48
Cameraman	26.4112	28.02
Boat	25.3471	26.68
Mandrill	23.9639	23.70
Peppers	27.1807	28.40

Reconstructed Images:





COMPRESSION RATIO 8:1

Training Time:7 hours
Layers: IN-512-256-8-256-512-OUT

MSE PLOT

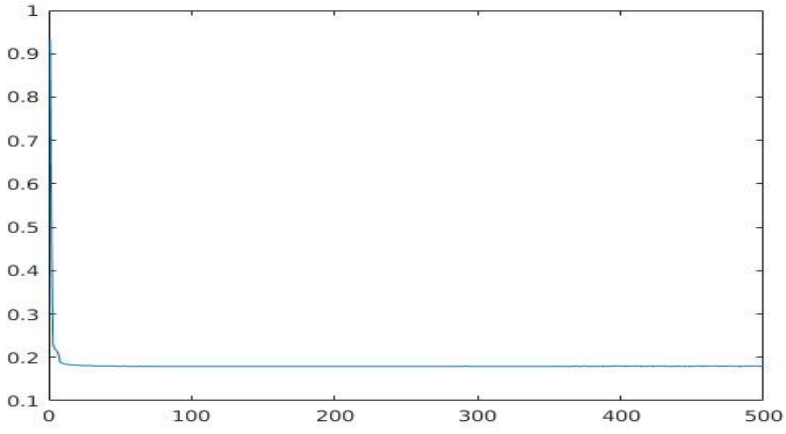
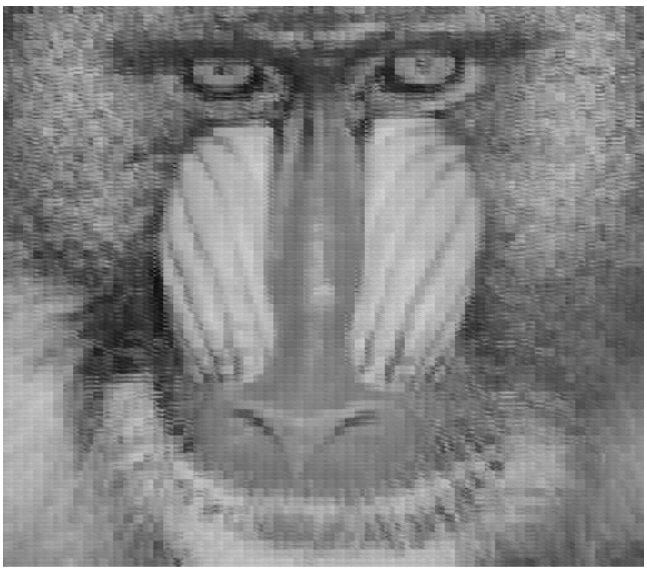


Table of PNSR

Image	My Model	Reference Paper Model
Lena	24.8539	26.20
Cameraman	23.2932	24.47
Boat	22.8704	26.31
Mandrill	22.1644	22.56
Peppers	24.5808	24.02

Reconstructed Images:



COMPRESSION RATIO 16:1

Training Time:less than 8 hours
Layers: IN-512-256-128-4-128-256-512-OUT

MSE PLOT

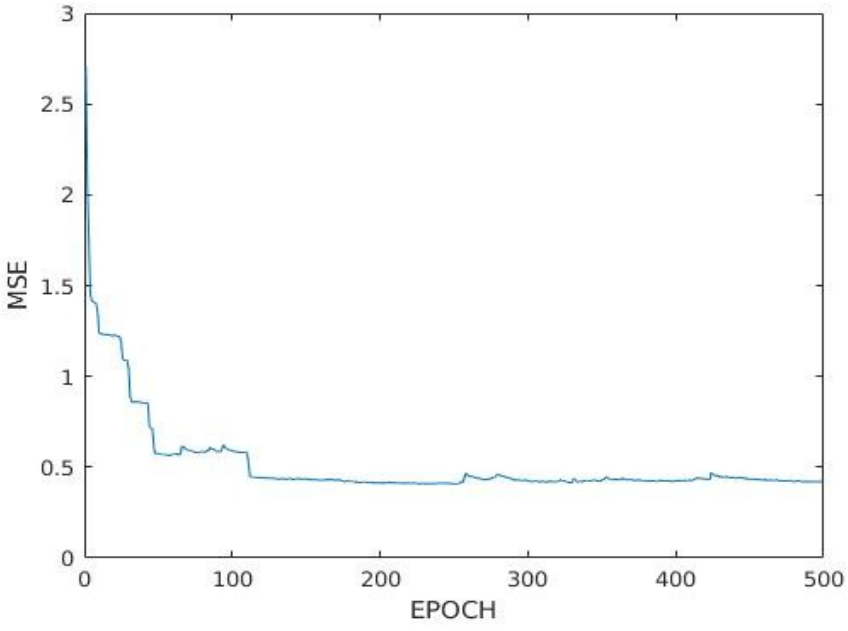


Table of PNSR

Image	My Model	Reference Paper Model
Lena	22.8067	25.19
Cameraman	21.7384	24.54
Boat	21.3095	24.11
Mandrill	20.8180	21.25
Peppers	22.6617	23.25

Reconstructed Images: