3.27

How do the program works:

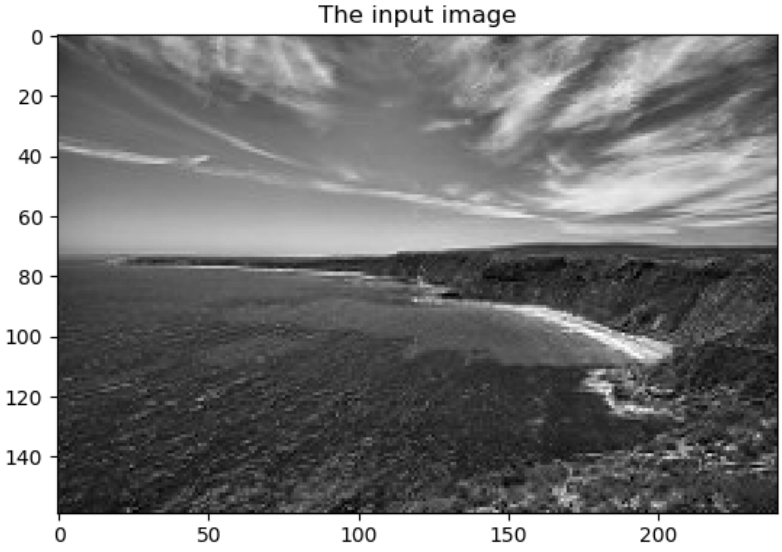
The program basically works as following.

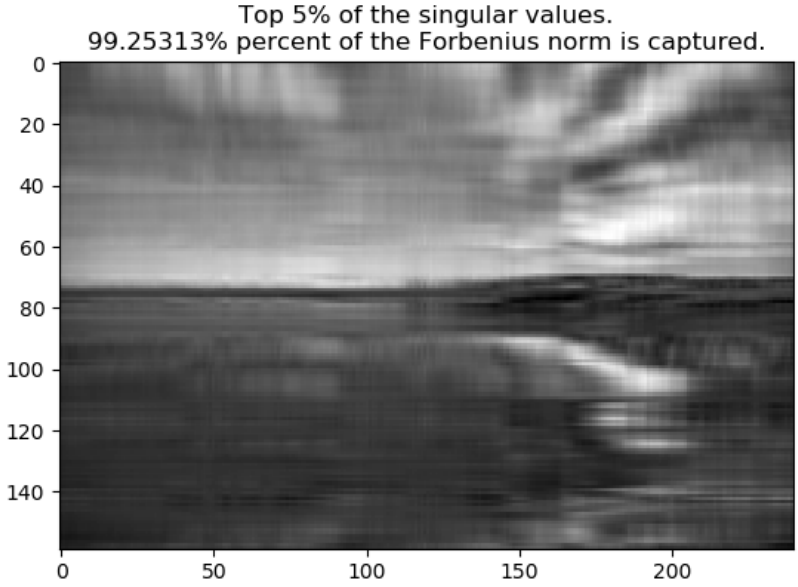
Import the image

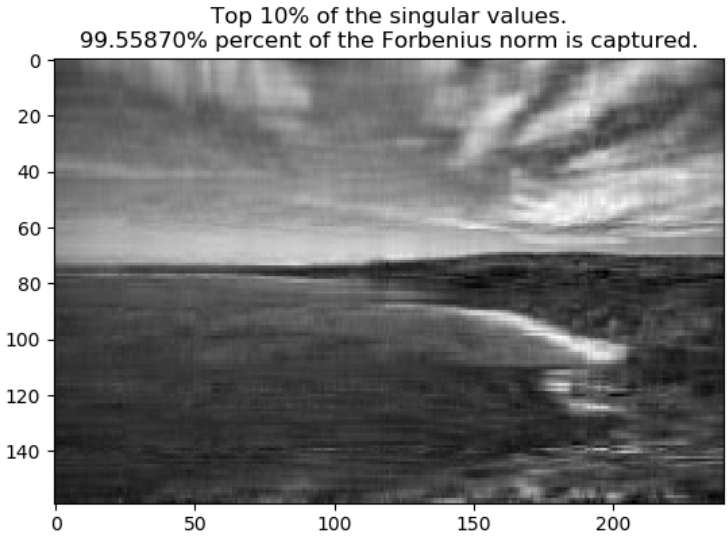
For each percentage:

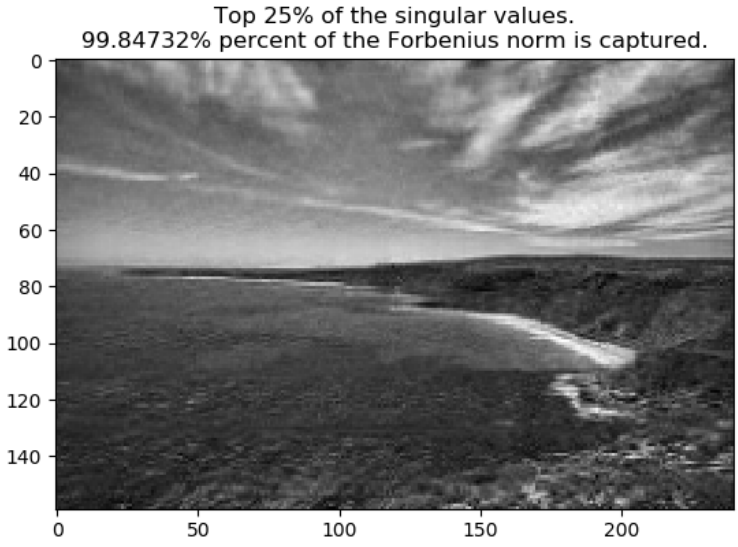
1. Calculate SVD of the image
2. Calculate min(n,m) * percentage. Here denoted as N
3. Reconstruct the image with the first N rows of singular values and N columns of singular vectors
4. Calculate the norm of reconstructed image

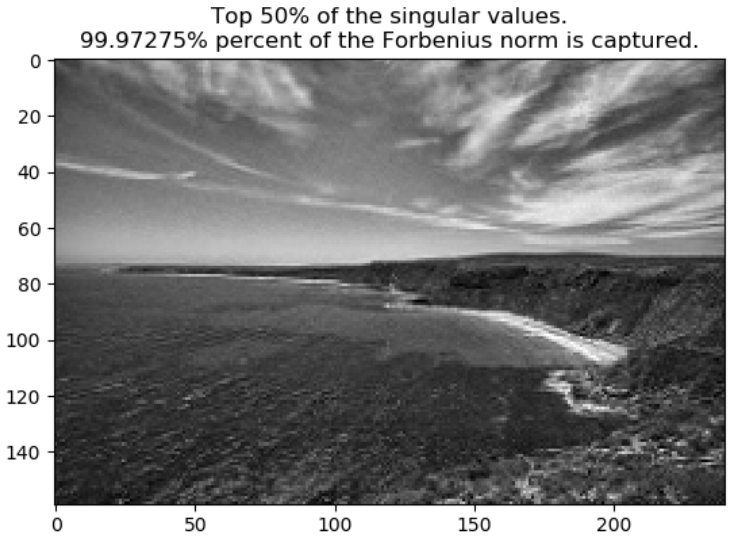
The results are shown as followed


The input image
0
20
40
60
80
100
120
140
0
50
100
150
200


Top 5% of the singular values.
99.25313% percent of the Forbenius norm is captured.
0
20
40
60
80
100
120
140
0
50
100
150
200


Top 10% of the singular values.
99.55870% percent of the Forbenius norm is captured.
0
20
40
60
80
100
120
140
0
50
100
150
200


Top 25% of the singular values.
99.84732% percent of the Forbenius norm is captured.
0
20
40
60
80
100
120
140
0
50
100
150
200


Top 50% of the singular values.
99.97275% percent of the Forbenius norm is captured.
0
20
40
60
80
100
120
140
0
50
100
150
200