PCA denoising

Original barbara-256

Part a
RMSE = 0.0720

Part b

Noisy image and Denoised Image using 200 most similar patches
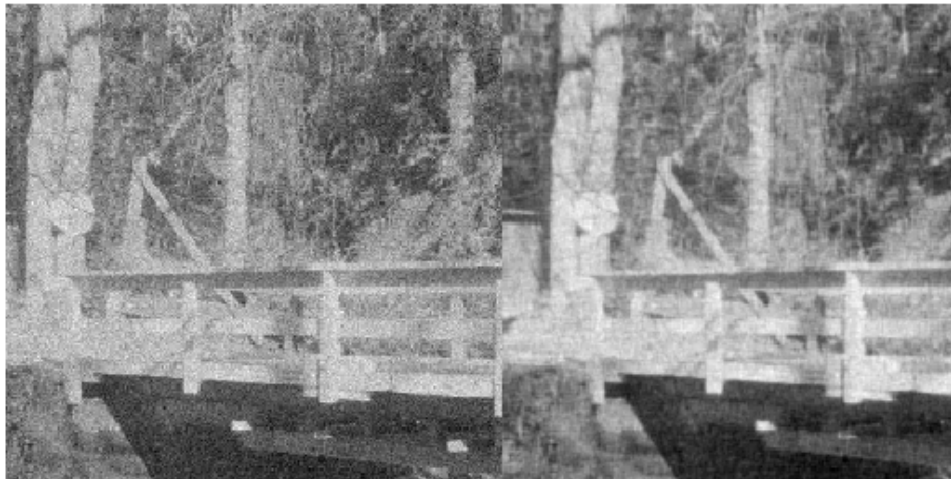

RMSE = 0.0814

Original stream

Applying 200

Noisy image and Denoised Image using 200 most similar patches

RMSE =   0.0818

Part c
RMSE = 0.1468

Noisy image and Denoised Image (Part C)

It is not as effective as PCA in denoising an image as:
 (i) bilateral Filtering does not take the noise statistics into account

 (2)bilateral filtering looks at pixel-level dissimilarity. PCA, however,
 finds similar patches and so is able to capture the local texture