CS 663: Assignment 2

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Notes and Observations

NOTE: Since none of our team members were able to register in Turnitin, we are attaching our Tcode and (fast to generate images). The published part contains output for parts 1 and 2 including RMSD values of part 2.

The tuned parameters can be found in the published code

Question 3 (Patch Based Filtering)

Even here we have used noisy images provided for grass and honeycomb. Also, due to long run times we downsampled barbara image by 2 after addition of gaussian noise with sigma = 0.3 * range. (30%). 15. After hours of tuning the parameters the performance of patch based filtering though not up to the expectations (raised high in classes), was a bit better than bilateral filtering. We can see its effects in the grass image where bilateral performs way worse. Also, barbara image is much more sharper and honeycomb image retains more of its details. Barbara noise addition is stochastic and different RSMD was observed for different runs. We've reported sigma which gave best visual results.
RMSD:

Barbara : sigma: 0.058 0.9 * sigma
HoneyComb: 0.045
Grass: 0.038

- Barbara
  - Sigma - 0.058
  - 0.9 * sigma - 0.057
  - 1.1 * sigma - 0.059
- HoneyComb
  - Sigma - 0.045
  - 0.9 * sigma - 0.048
  - 1.1 * sigma - 0.043
- Grass

- Sigma - 0.038
- 0.9 * sigma - 0.040
- 1.1 * sigma - 0.038