Assignment-2

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1A) ***Gaussian and Laplacian Pyramid***

Example 1:

Gaussian Pyramid:

Laplacian Pyramid:

Here,

I used gaussian filter of size 5 and sigma as 2.

Example-2:

Gaussian Pyramid:




Laplacian Pyramid:




Here,

I used Gaussian pyramid of size 5 and sigma as 10.

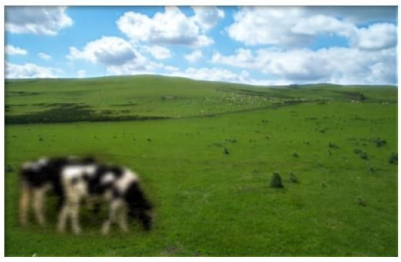
1B) ***Image Blending With Laplacian Pyramid***

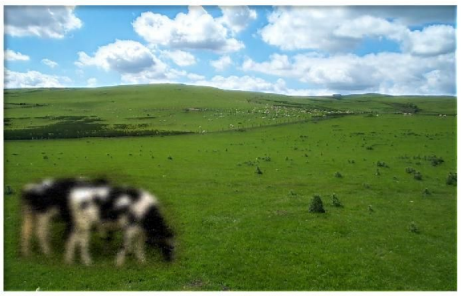
Example-1:

Here,

I used gaussian filter of size 4 and sigma 2 and level of gaussian as 4.

Example-2:





Example-3:

1C) ***Image Up-Sampling*** :

Nearest Neighbor:

Example-1:

Actual image

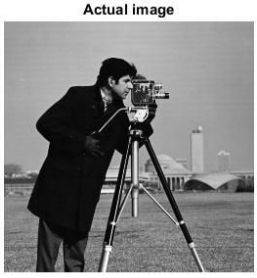
Nearest Neighbor

Nearest Neighbor

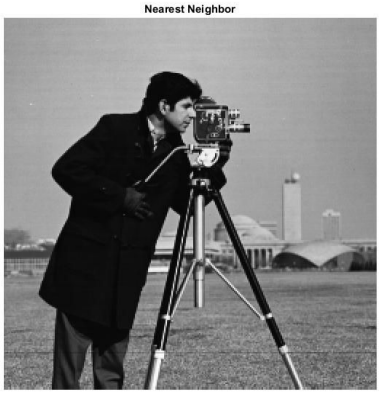
Nearest Neighbor

Example-2:

Actual image



Nearest Neighbor



Nearest Neighbor

Nearest Neighbor

Linear/Bi-Linear:

Example-1:

Actual image

Linear/Bilinear

Linear/Bilinear

Linear/Bilinear

Example-2:

Actual image

Linear/Bilinear

Linear/Bilinear

Linear/Bilinear

Bi-Cubic:

Example-1:

Actual image

BiCubic

BiCubic

BiCubic

Example-2:

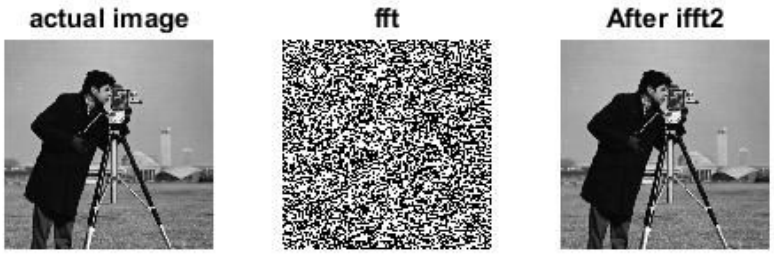
Actual image

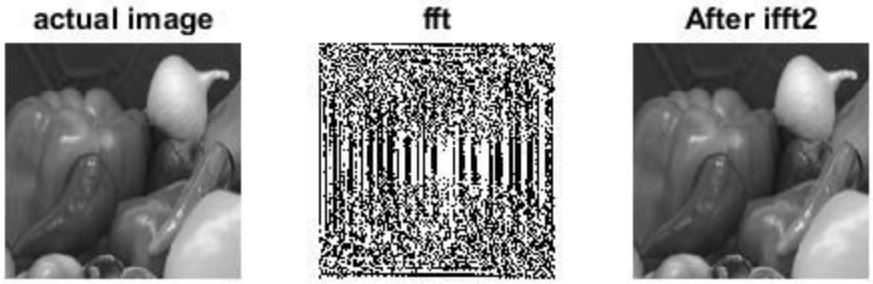
BiCubic

BiCubic

BiCubic

2A) Fast Fourier Transform:





2B) ***Low Pass/High Pass***:

Example-1:

For Radius = 30,n = 2;

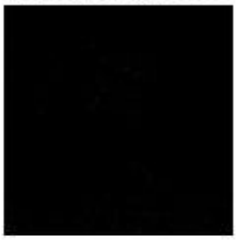
For radius = 150, n = 2;

Ideal Low pass

Butterworth

Gaussian

Ideal High pass



Butterworth

Gaussian

Example-2:
For radius = 30,n=2;

Ideal Low pass

Butterworth

Gaussian

Ideal High pass

Butterworth

Gaussian

For radius - 30 , n = 4;

Ideal Low pass

Butterworth

Gaussian

Ideal High pass

Butterworth

Gaussian

2C) ***Laplacian Filter***:

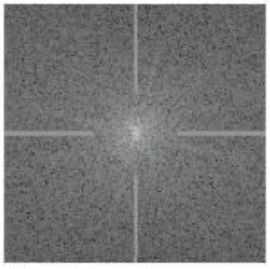
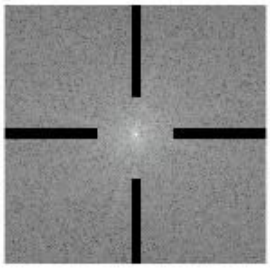
Example - 1:

Example-2:

2D) ***Notch Pass/Reject filter***:

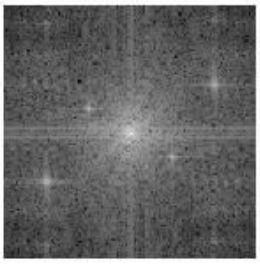
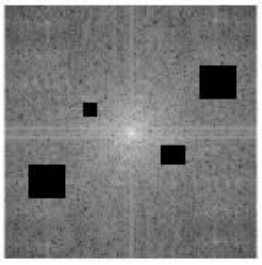
Example-1:



Example-2:



Example-3: