DIP Assignment 2

Deepayan
email deepayan.das@research.iiit.ac.in

September 2017

1 Introduction

1.1 Problem 1: Image Resampling

1. **Gaussian and Laplacian Pyramids**

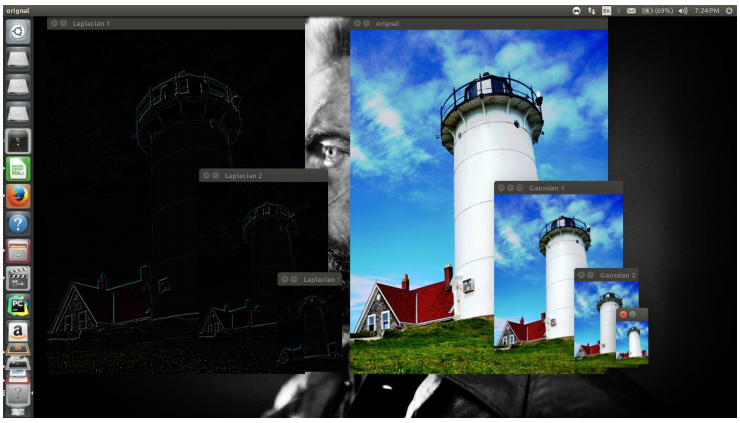

Figure 1: The above figure shows the gaussian and Laplacian Image Pyramids.

2. **Gaussian Laplacian Pyramids**

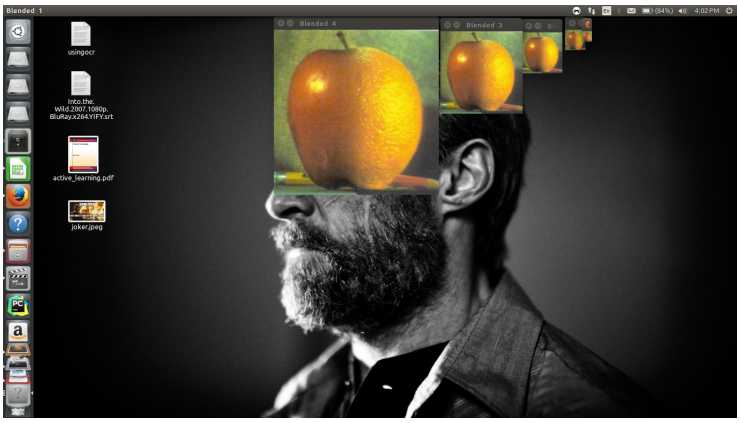

Figure 2: Example 1

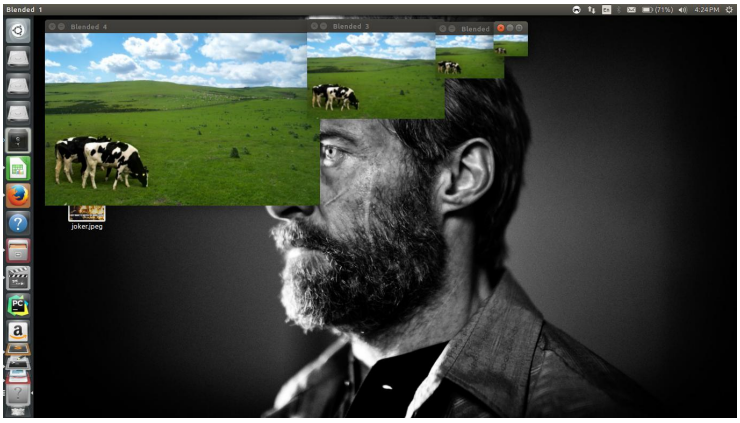

Figure 3: Example 2

Figure 4: Example 3

3. **Image up-sampling**

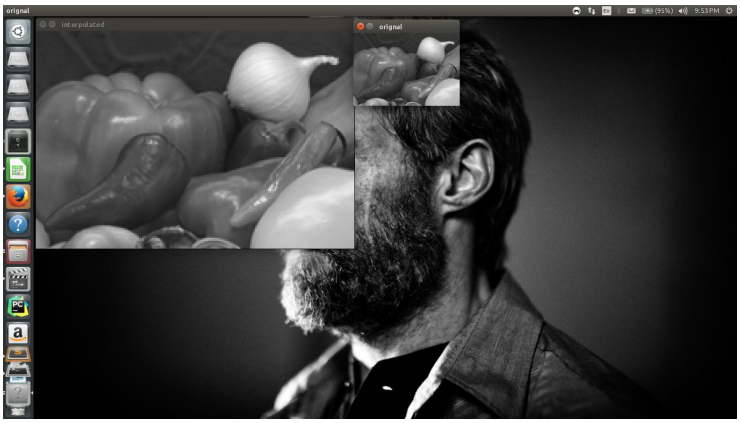

Figure 5: Up-sampling with nearest neighbour approach

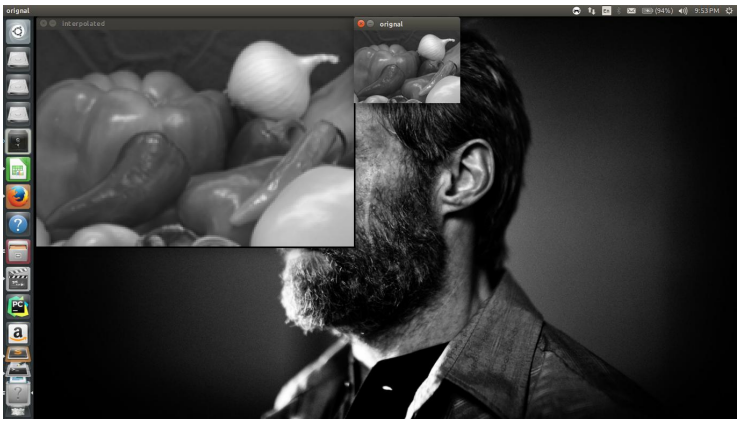

Figure 6: Up-sampling with bi-linear approach

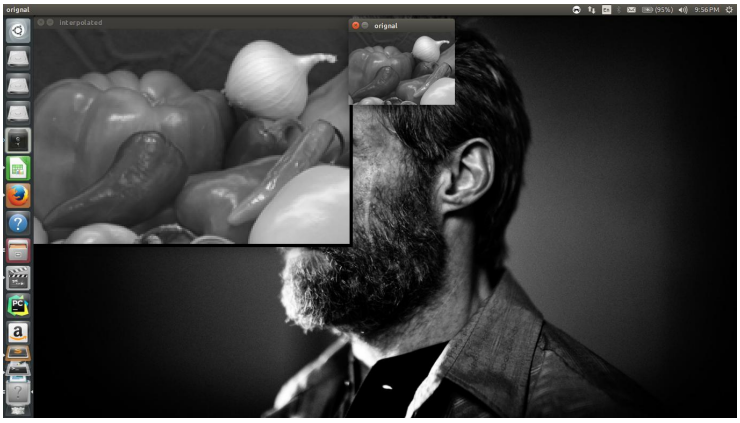

Figure 7: Up-sampling with bicubic approach

1.2 Problem 2: FFT Frequency filters

1. **FFT**

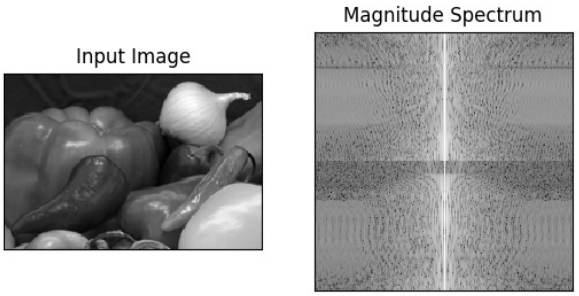

Figure 8: FFT

2. **Low Pass Filters**

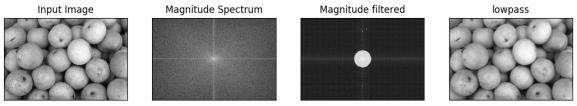

Figure 9: Ideal lowpass filter

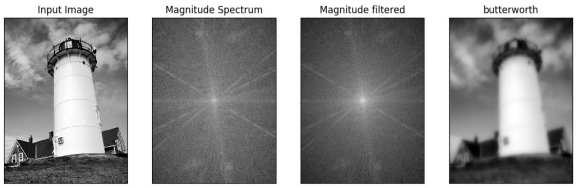

Figure 10: butter worth filter

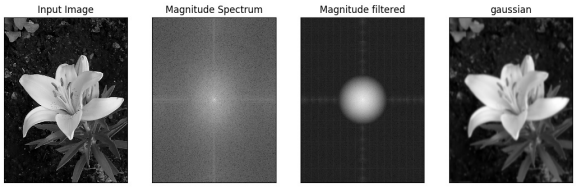

Figure 11: Gaussian Low Pass filter

3. **High Pass Filters**

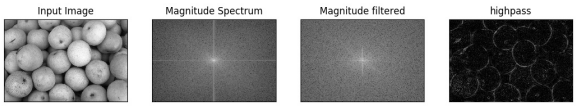

Figure 12: Ideal High Pass filter

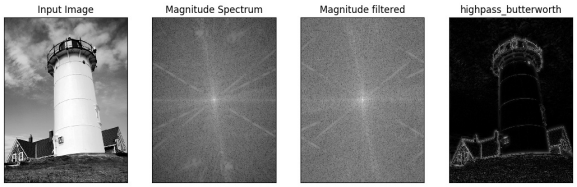

Figure 13: Butter worth High Pass filter

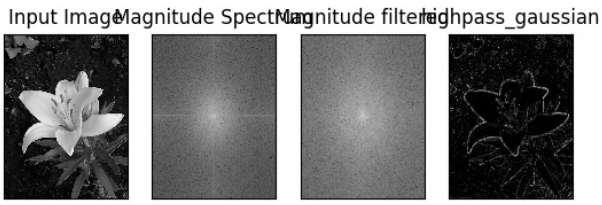

Figure 14: High Pass Gaussian Filter

4. **Laplacian Filter**

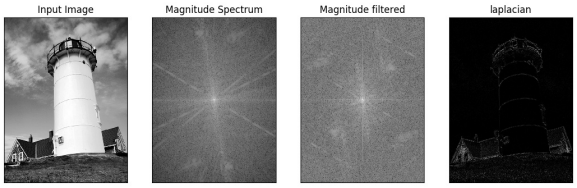

Figure 15: Laplacian Filter

5. **Notch Filters**

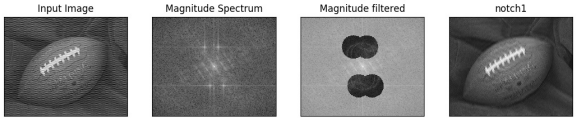

Figure 16: Example1

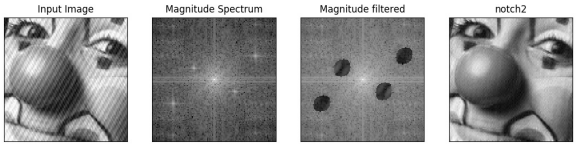

Figure 17: Example 2

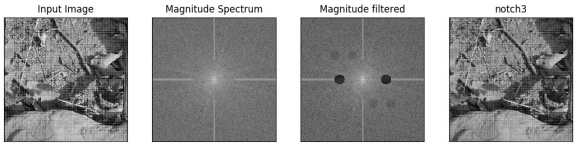

Figure 18: Example 3