

Question A:

1. Show your test pattern, and the result after the non-linear transformation using both methods (show the two transformed images).
2. Mention the time taken by each method, measured by Matlab's tic/toc function.

Question B:

1. Qualitative description of all the filters
 - Their lowpass/highpass/bandpass characteristics
 - DC value suppression if any
 - If you are given the filter's impulse response as a function, comment on the effect of the parameters in the function on the shape of the filter frequency response.
2. The filter h11:
 - Mesh and contour plots and the filtered image.
 - Label and orient the axes as given in the lab instructions
 - Comment and relate the changes in the filtered image with your understanding to the filter's frequency response.
3. The filter h21:
 - Mesh and contour plots and the filtered image.
 - Label and orient the axes as given in the lab instructions
 - Comment and relate the changes in the filtered image with your understanding to the filter's frequency response.
4. Gaussian filter:
 - Mesh and contour plots of the filter's frequency response corresponding to the second value of the parameter **r2**.
 - The value of **c2**.
 - Label and orient the axes as given in the lab instructions
5. Gabor filter:
 - Show the original (corrupted) image and the filtered image.
 - Show the contour plot of the filter.
 - Label and orient the axes as given in the lab instructions

- Relate the changes in the filtered image with your understanding to the filter's frequency response.

6. Comparing computation times (Question B Part 5)

- Express the filter in separable form
- Mention the computation times you get with direct implementation, using conv2 twice and using the separable mode of conv2 (3 cases).
- Copy and paste the code snippet you used for each of the above 3 cases into your report.
- Are the output images the same in all cases?

You can submit your report either as a PDF or an MS Word document. **Marking PDF submissions is much easier though.**