

## Sheet

Filtering in the frequency domain:

1. What are the motivations for using DFT in image processing?
2. What are the drawbacks of ideal LPF ?
3. Give examples of smoothing filters in the Fourier domain.
4. Give examples of sharpening filters in the Fourier domain.
5. Prove that the Laplacian is a HPF.
6. Show that the Laplacian is a linear operator?
7. Prove that multiplying an image  $f(x,y)$  with  $(-1)^{x+y}$  translates the center of the  $F(u,v)$  to  $(M/2, N/2)$ .
8. Describe how to implement highboost filtering in the Fourier Domain