

Lab 2. Task 1- preparation task

Template for answers

Save this document as a .pdf document before submitting.

Student names and LiU-IDs: (Max 2 students per group):

1. Cindy Khuong (cinkh090)

2. Rebecca Sjödin (rebsj192)

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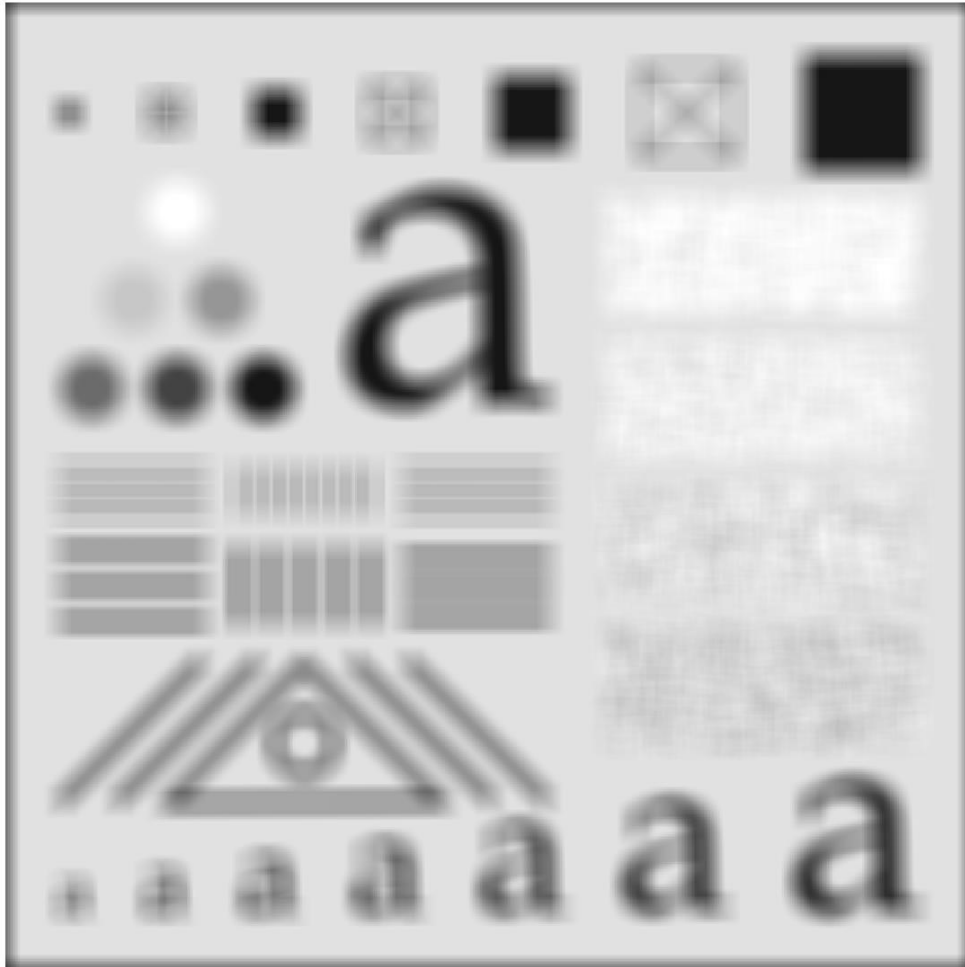
Version (in case you need to re-submit): 1

1) Testing different box filters

1) Image1:



2) Image2:

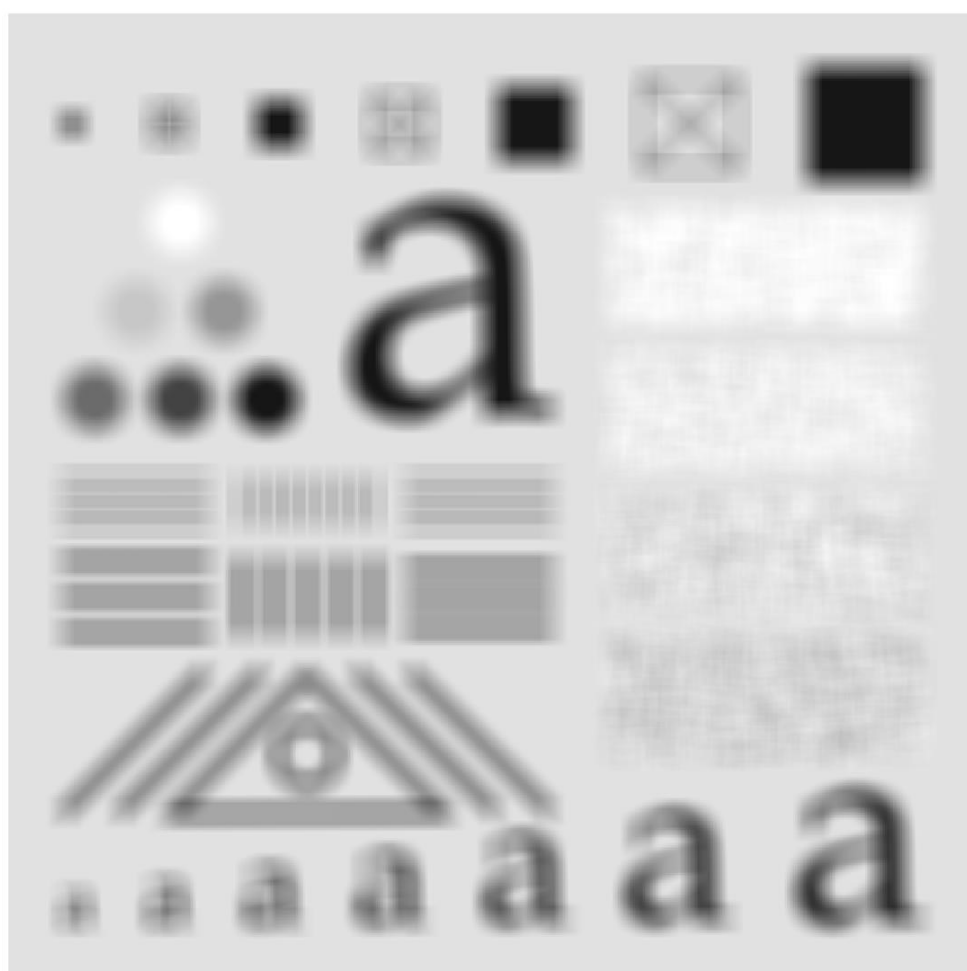


3) Does the 21×21 box filter have a lower or higher cutoff frequency than the 9×9 box filter? Explain why!

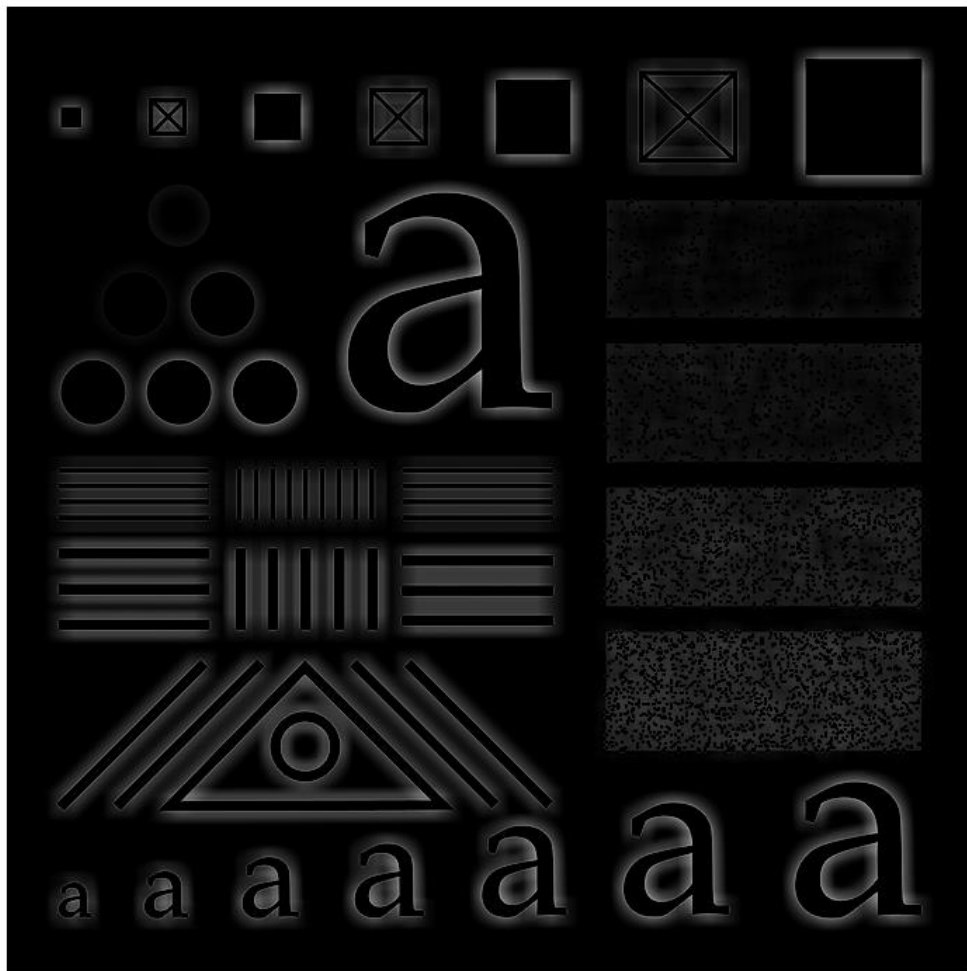
When we increased the box filter to 21×21 we received a more blurred image. Therefore the 21×21 box filter has a lower cutoff frequency and that is because it eliminates more of the higher frequencies. The image loses more information.

4) What is the reason for these dark borders in Image2?
Because we have a zero padding.

5) Image3:



6) Image4:

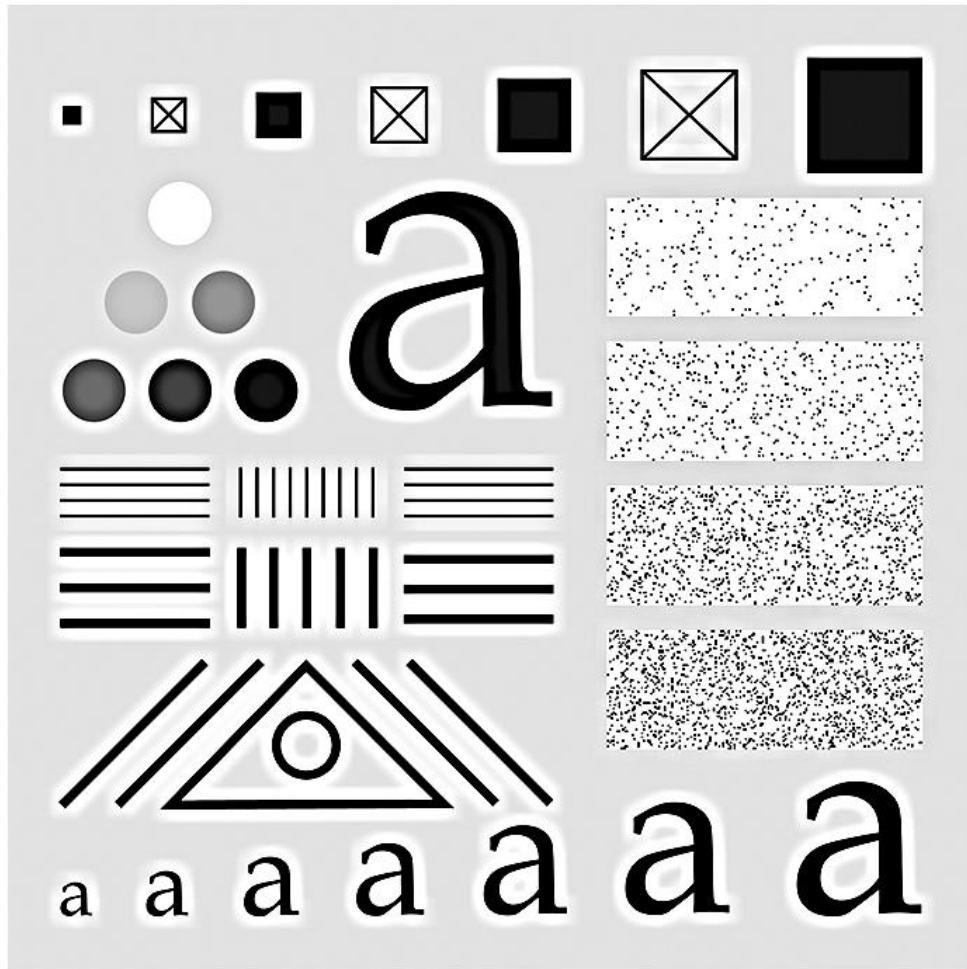


7) Why is *Image4* so dark? What is the average value of the pixel values in *Image4*? And why?

The image is dark because most of the pixels has a negative value. So the average value of the pixel values are low.

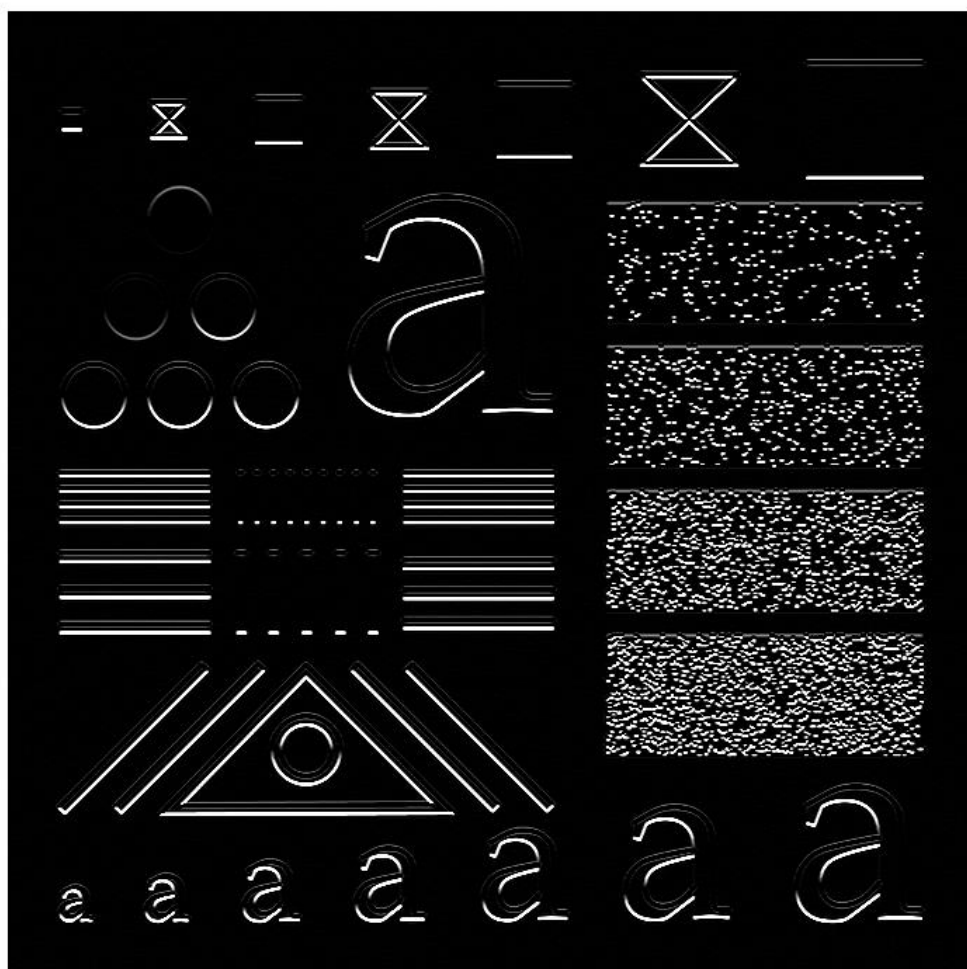
The mean value: $-5.4627 \cdot 10^{-6}$

8) Image5:

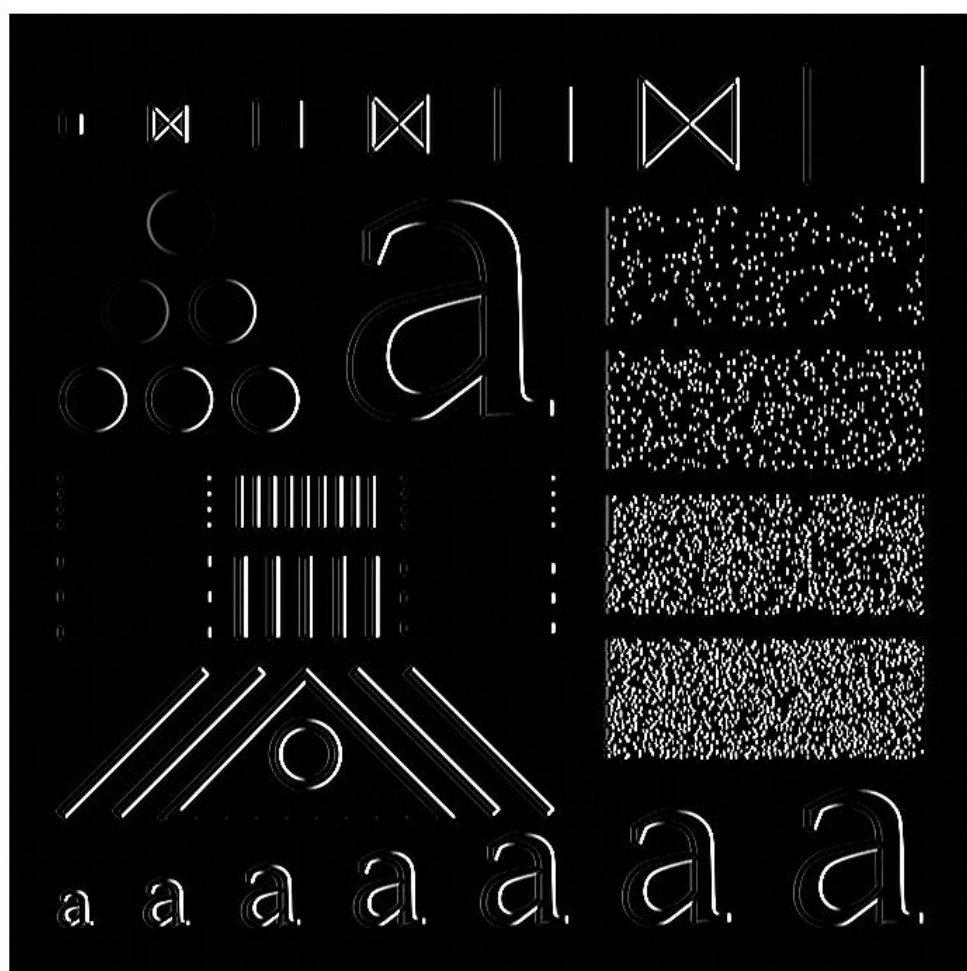


2) Testing Sobel filter kernels and gradient

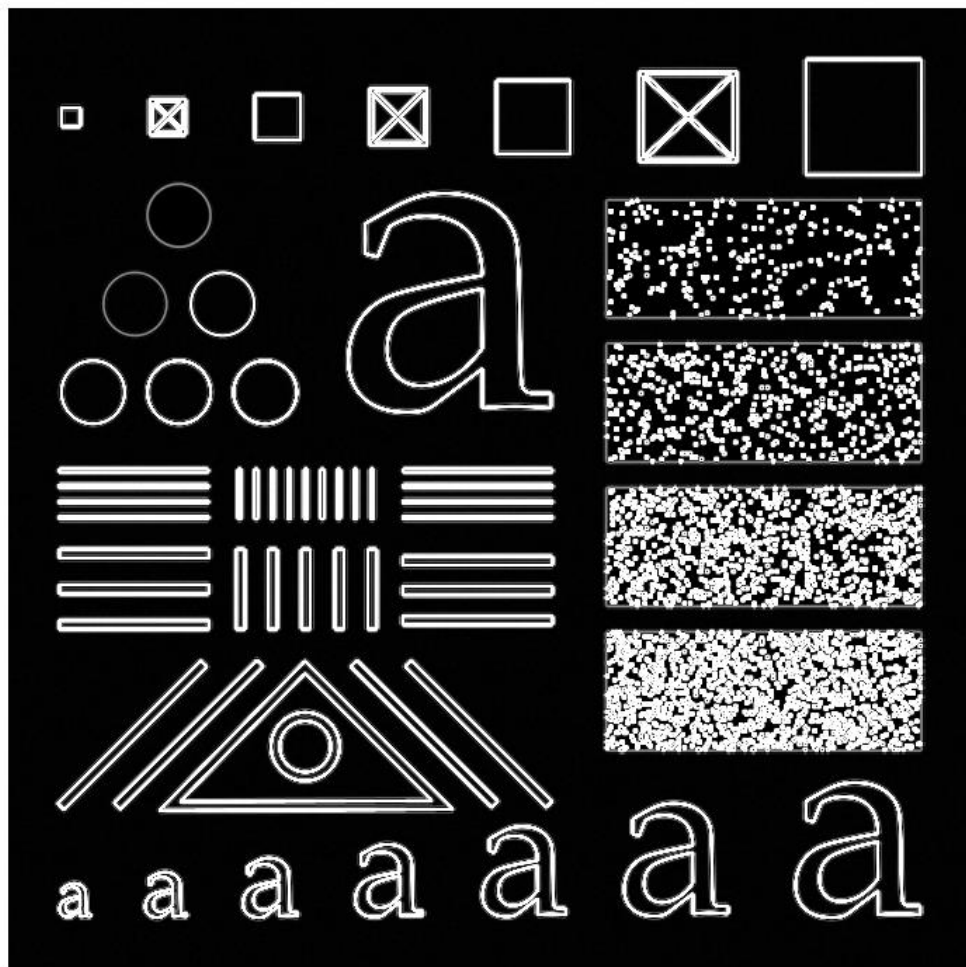
9) Image6:



10) Image7:



11) Image8:



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