



Week 10 Exercises

Fys-2010

Spring 2019

Exercise 1

Prove that both the continuous and discrete 2D Fourier transforms are translation and rotation invariant.

Exercise 2

Problems from the book (3rd edition): 4.21, 4.22, 4.24, and 4.27

(4th edition): 4.41, 4.42, 4.37 and 4.47

Exercise 3

Implement a Gaussian highpass filter, described by Eq. 4-120 (4-9.4) in the book.

- (a) Use this filter on the image corresponding to Fig. 4.41 a (4.41 a).
- (b) Use this filter for unsharp masking or highboost filtering, see Eq. 4-132 (4.9-14), and perform some experiments on the image corresponding to Fig. 4.56 (4.58).

Exercise 4

Do "Problem 2-image filtering" from Exam 27 May 2013. <https://uit.no/Content/348182/FYS-2010%20V13.pdf>