# Lab 4. 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.Magnus Kling (magkl572)*

*2. Max Wiklundh (maxwi824)*

*Submission date:*

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

1. **Hough transform**

**1)** H1:



**2)** Your guess:

The lines are rotated 65 degrees clockwise from the original image.

**3)** What is the exact angle corresponding to the lines in ?

The exact angle is 65 degrees.

**4)** What is the angle of **clockwise** rotation to rotate to the horizontal level? Use your answer from problem 3.

We need to rotate 25 degrees clockwise => 65 - 90 = -25 degrees.

**5)** Image1a\_rotated:

**A black background with white lines

Description automatically generated**

**6)** What is the exact angle corresponding to the straight lines in ?

The angle is -75 degrees.

**7)** What is the angle of **counterclockwise** rotation to rotate to horizontal level? Use your answer from problem 6.

-75 + 90 = 15 degrees to get image1b to horizontal level.

**8)** Image1b\_rotated:

**9)** Image1c with noise removed:

****

**10)** Image1c\_clean (noise and lines removed):

**11)** RGB-image displaying the 3 different classes of objects in different colors:

**

**12)** Your structuring element: SE = strel(…)

Segmented image with all the grains of rice:

**13)** Labeled image, L, scaled by max value:

**14)** What are the perimeters for the large objects (having area > 3000 pixels)?

Image containing only the large objects:

**15)** What is your selected threshold value?

What are the labels of the objects belonging to the class with the smallest perimeter?

We get 3 objects with a perimeter under 150, 3 objects between 200 and 250 perimeter and 4 objects above 300 but below 350.

**16)** What are the labels of the objects belonging to the class with the largest perimeter, and that has no holes?

Image containing only objects having the largest perimeter, without holes: **A group of white circles on a black background

Description automatically generated**

*Don’t forget to save the document as* ***.pdf*** *before submitting!*