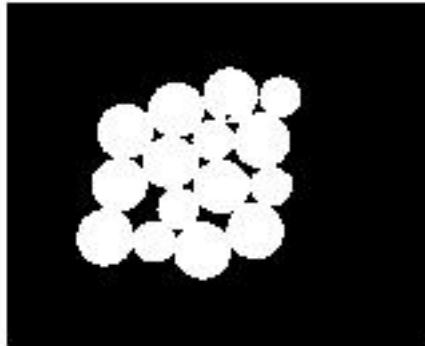CSE 152 – HW2
Pierre-Louis GOTTFROIS

1. Binarization

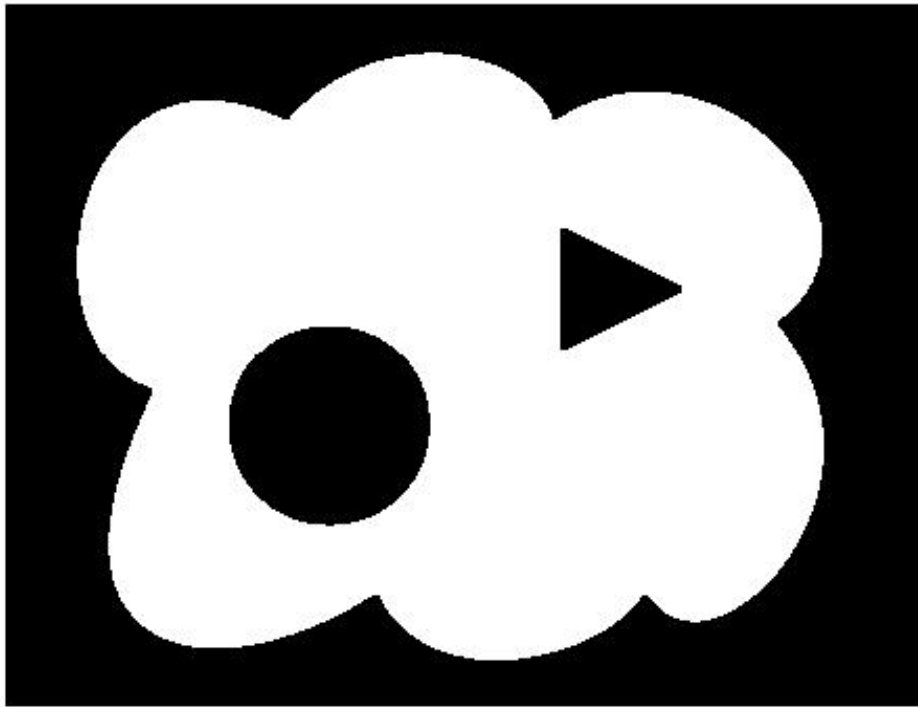Function in « peakiness.m ».

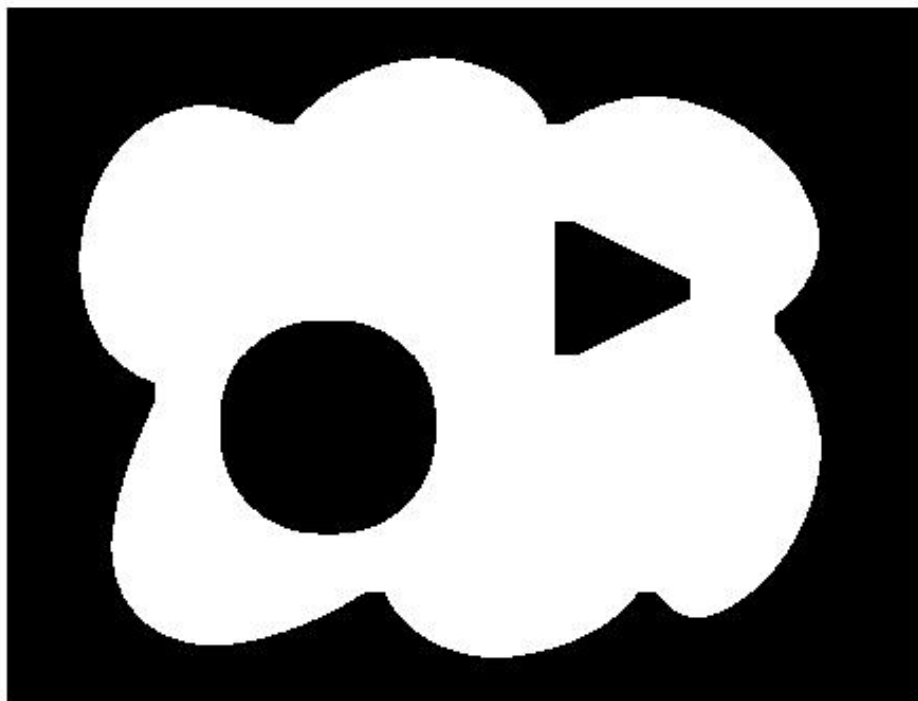2. Morphological Image Processing
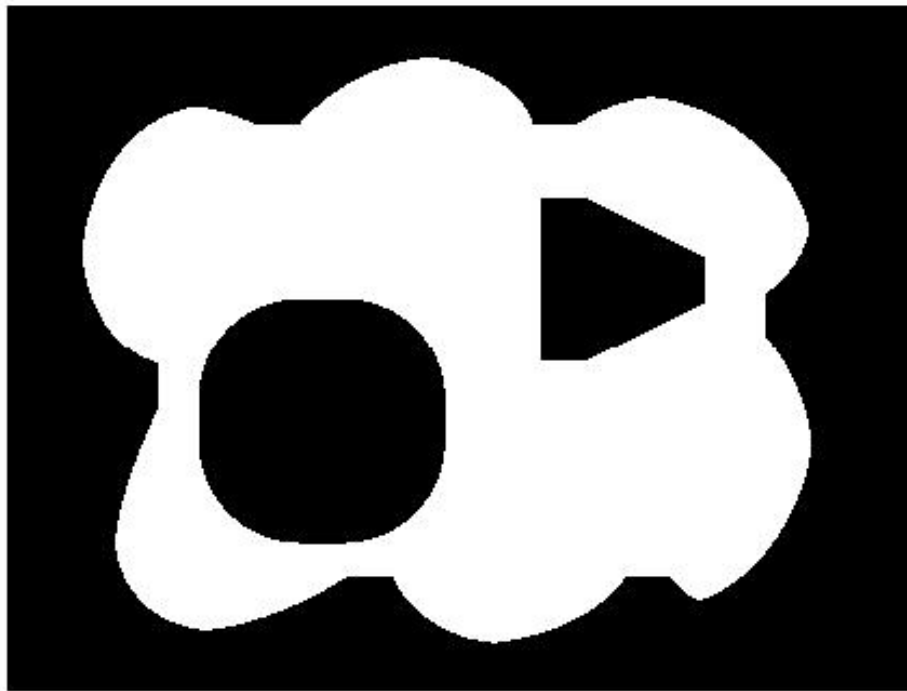   a. Erosion

Function in « erode.m ».
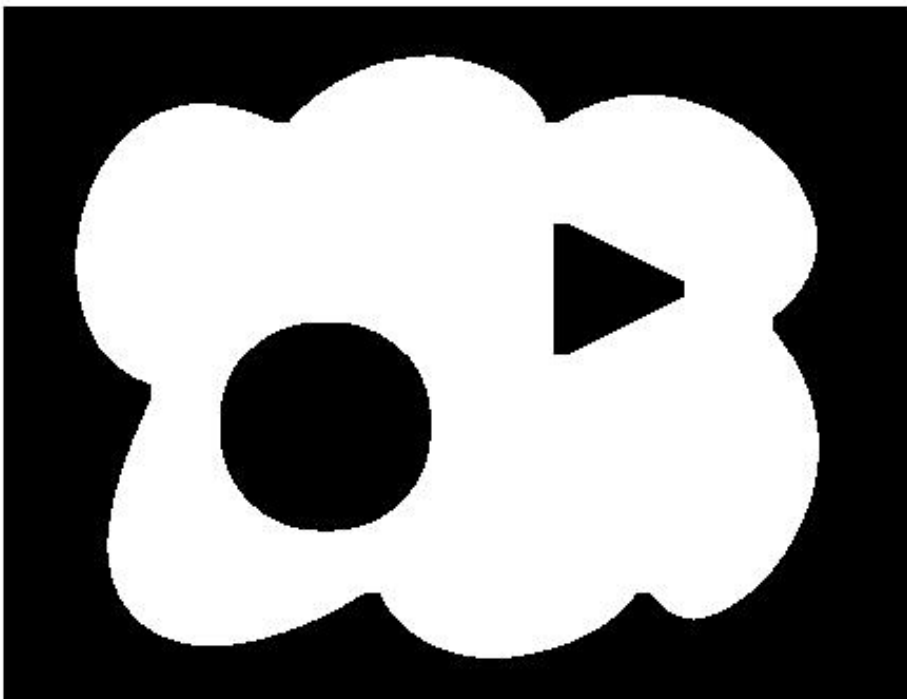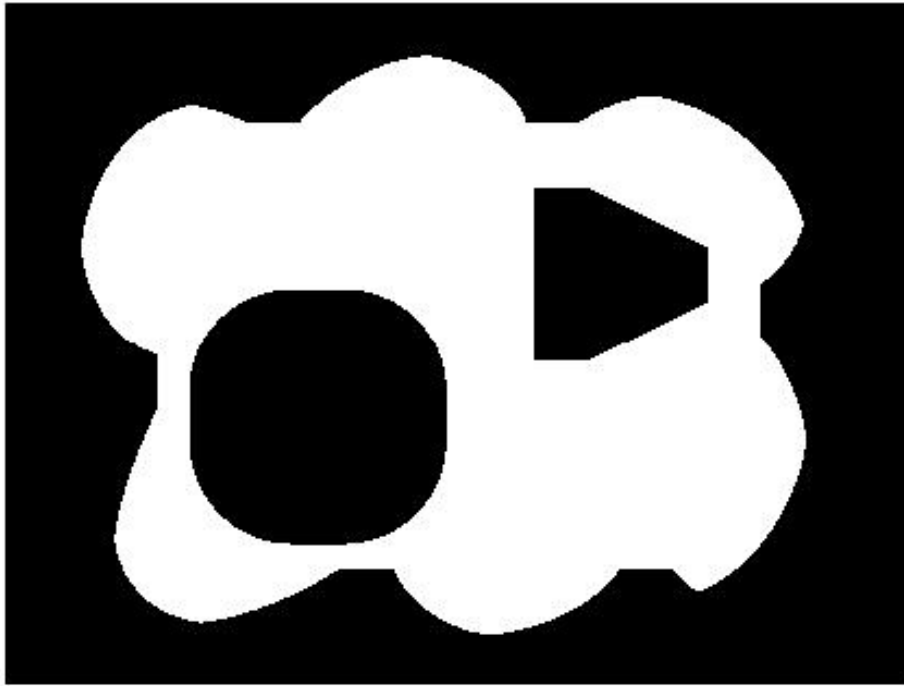
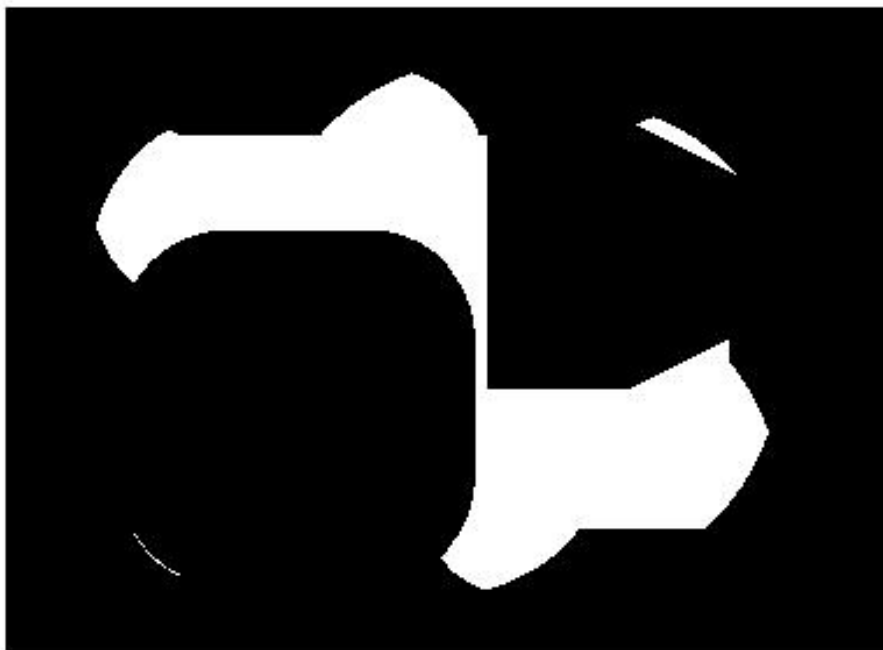Erode by 1

Erode by 4

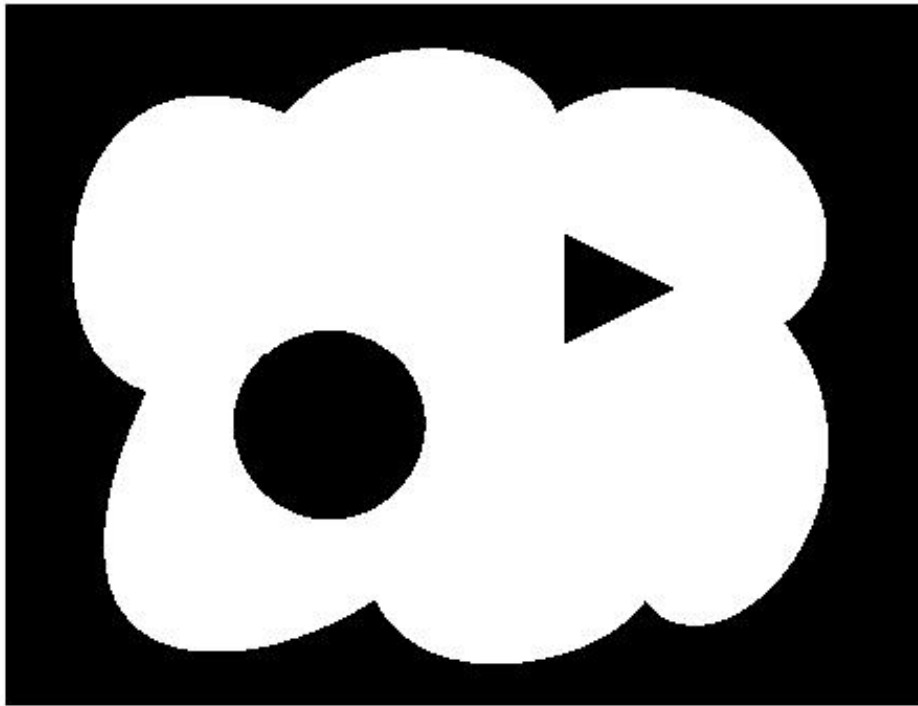Erode by 10

b. 7*7

Erode by 1

Erode by 4

Erode by 10

Using a bigger structuring element has the effet to add more erosion to the images with less iterations.
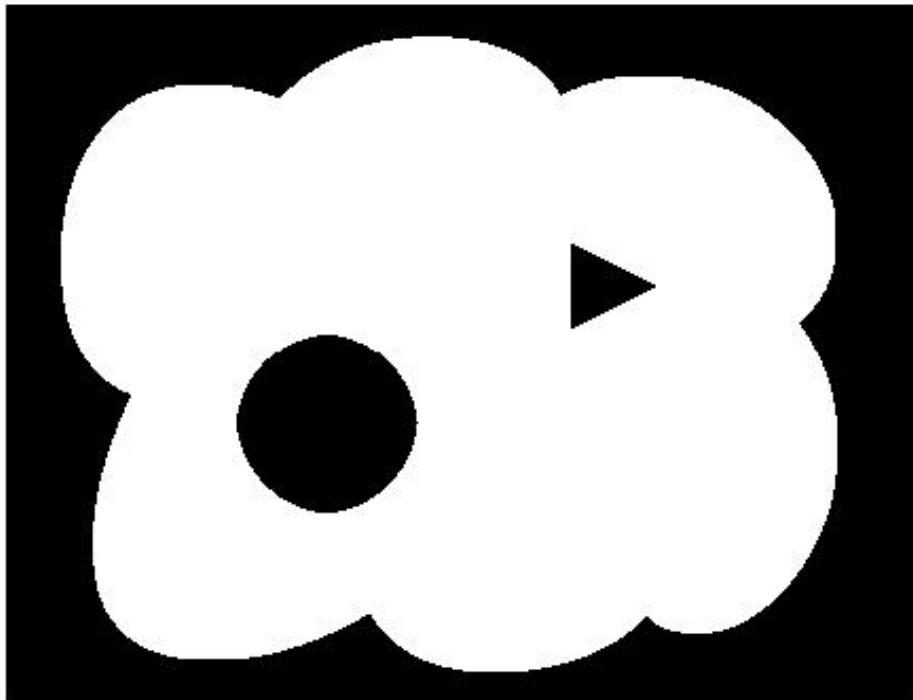
c. Dilation

Function in « dilate.m ».

I would use a 3*3 or 7*7 matrix filled with 0.
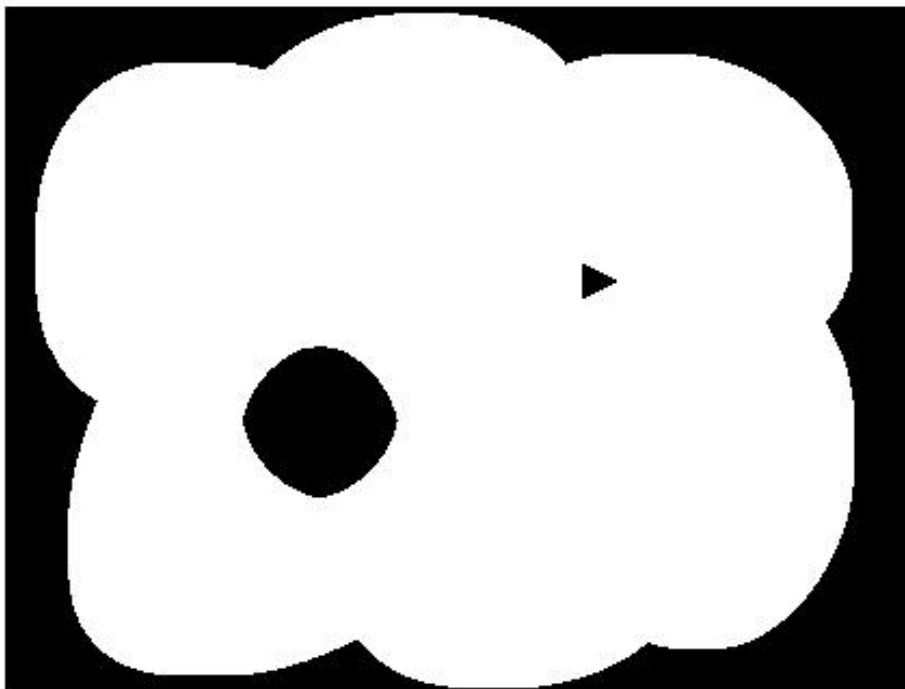
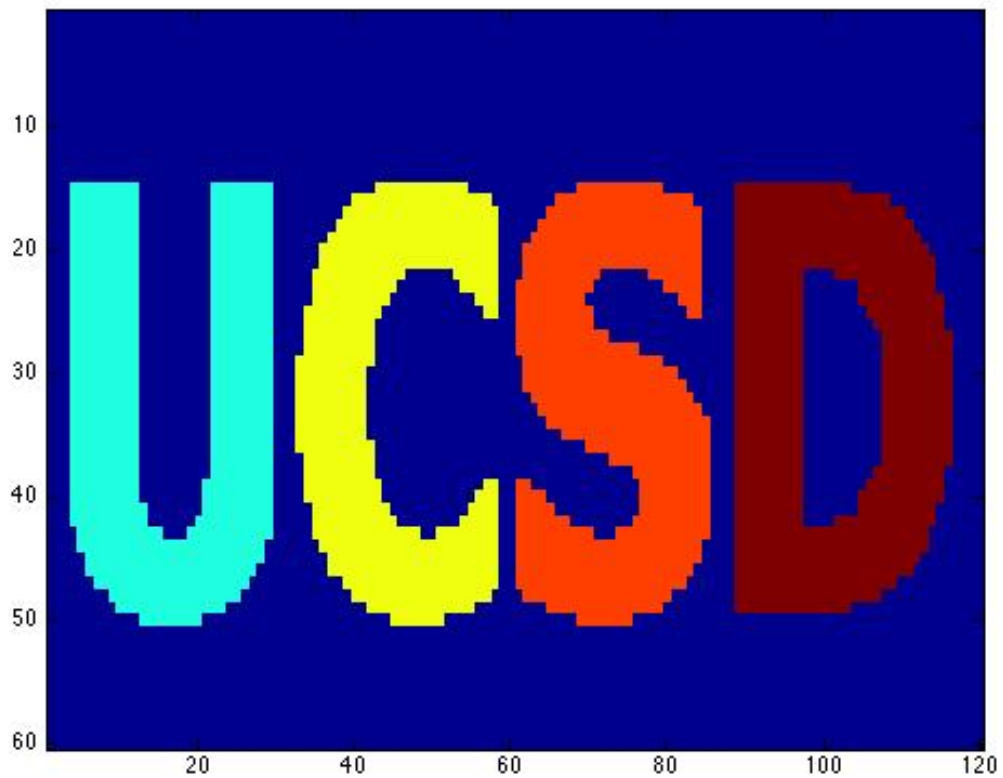Dilated by 1

Dilated by 4

Dilated by 10
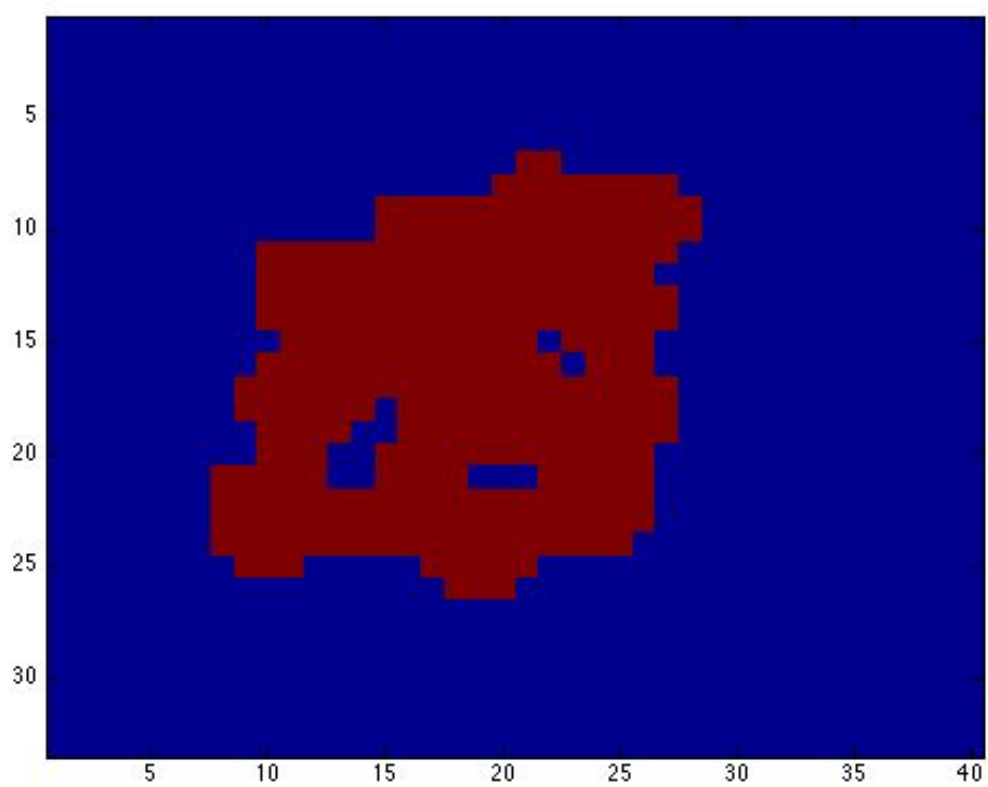
3. Connected Components
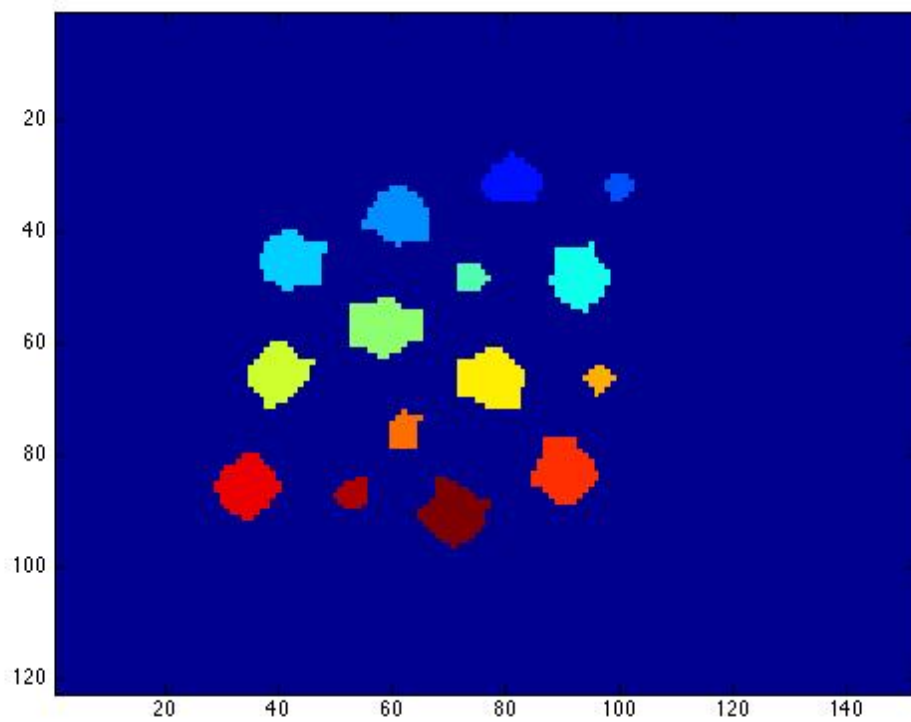   a. Ucsd image

Function in « connected.m ».

    b. Coins image

First I was guessing it would have only 1 component since the coins are very close to each other. Then when I run the program, here what I had :
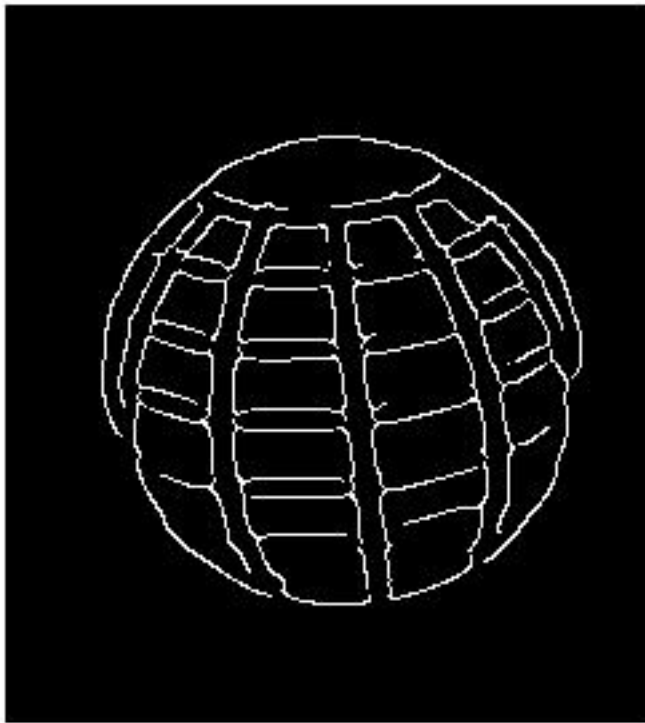
Then when applied the erosion :

You will find the code to count the number of coins in « hw2.m ».

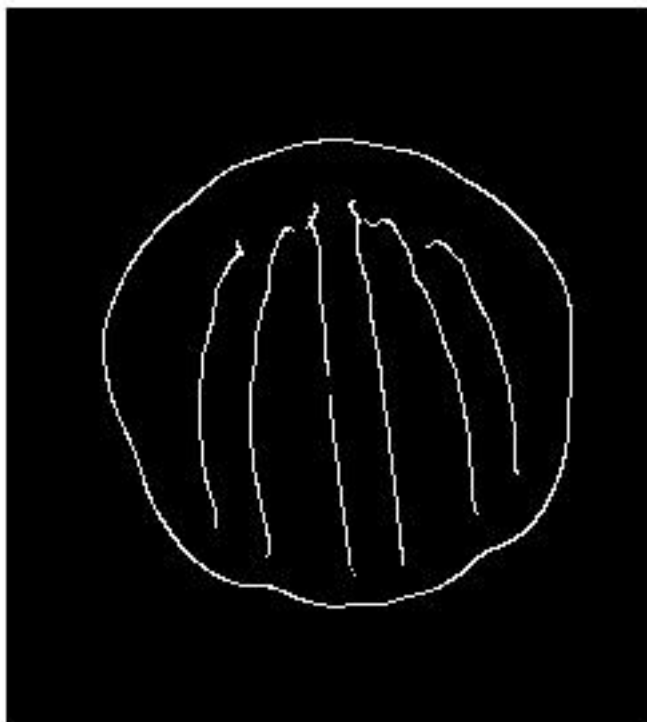4. Edge Detection

tl =

   0.2000

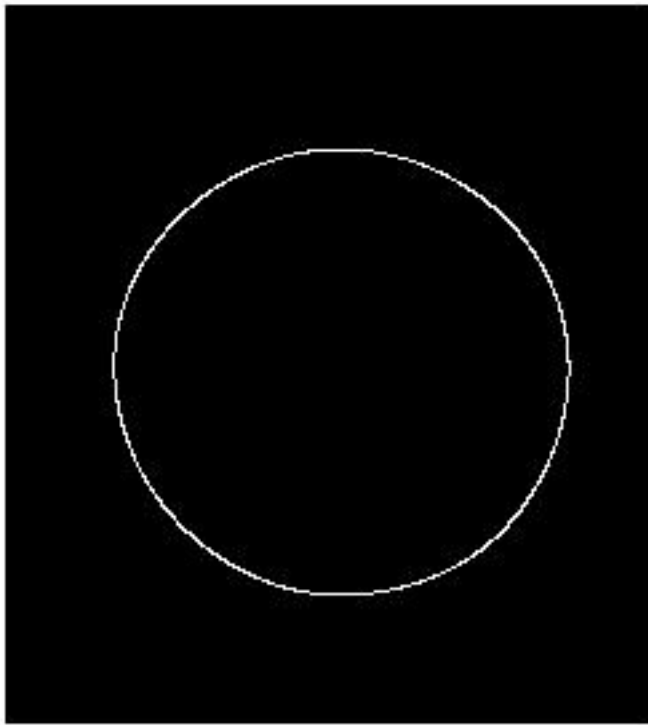th =

   0.5000

t =

3

tl =

   0.0400

th =

   0.2500

t =

9

tl =

0.0016

th =

0.0625

t =

81

The more you lower the thresholds, the less « noise » you keep as edges. So here we want to start with a threshold high enough to get more edges and then lower it to only keep the circle edge at the end.
We want also to have a big sigma in order to have a bigger and bigger standard deviation of the Gaussian filter.