Homework #2
Due Th. 9/29

Be sure to show all your work for credit. You must turn in your code as well as output files (**code attached at the end of the report**).

Please generate a report that contains the code and output in a single readable format using Latex.

0. Getting Started

   - Download the homework images from the class website.
     `http://www.ee.unlv.edu/~b1morris/ecg782/hw/hw02`

1. (GW 6.16)

2. (GW 6.17) Perform the operation in Matlab for parts (b) and (c).

3. (GW 6.25)

4. (GW 6.28) Use Matlab to plot the surface. *Hint:* `ellipsoid.m`.

5. Prove the validity of the duality expressions:

   (a) $(A \oplus B)^C = A^C \ominus \hat{B}$
   (b) $(A \bullet B)^C = (A^C \circ \hat{B})$
   (c) $(A \circ B)^C = (A^C \bullet \hat{B})$

6. Dilate the image given in Figure 13.50(a) with the structuring element in (b). Do this by hand and using Matlab.
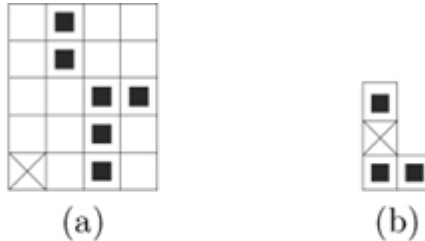

(a)   (b)

Figure 13.50: (a) Image to be processed. Assume that image data are undefined outside of the image domain. (b) Structuring element. © *Cengage Learning 2015.*

7. (GW 2.23)

8. (GW 9.5)

9. (GW 9.6)

10. (GW 9.19)