

Lab Sheet for AI Techniques, Part 7/7

Task 1

In your own words, describe in detail the process of

- (a) Sobel edge detection
- (b) Canny edge detection.

Task 2

(a) Go to the scikit-image.org web site, then to the “gallery” page, and then select the “Using simple NumPy operations for manipulating images” example. Copy the example program into your Python environment. Try to understand the image manipulations carried out in the program with the help of Python and numpy documentation (or web sites such as stackoverflow.com). Check your understanding by commenting out individual lines and observing the resulting changes in the image. Try some image manipulations yourself and discuss your results with your tutor.

(b) Go to the scikit-image.org web site, then to the “gallery” page, and then select the “Blob Detection” example. Copy the example program into your Python environment. Read the text on that web page and the documentation of the Laplacian of Gaussian blob detection function. Change some parameters of the Gaussian kernels and observe the effects on which blobs are detected in the image. Discuss your results with your tutor.