Homework 4

Jiaming Chen

1-Roberts Operator

1.b (Tested on ‘peaks.jpg’) When T = 20, the result is the best. The edge map shows almost all the edge of objects in the original picture. For example, the edge of the mountains appears to be continuous and so does the edge of the building.

1.c For ‘xbank.jpg’, a T value between 35 and 40 would be appropriate. For ‘peakshalf.jpg’, T=10 would generate the best edge map. For ‘peakshalfplus.jpg’, the best T value is the same as ‘peakshalf.jpg’. The reason why they share the same best T value is that they have the same histogram shape, the image ‘peaks.jpg’ have a similar histogram shape but flattened to twice wider as those two, so it has its vest T value almost twice as the one with ‘peakshalf.jpg’ and ‘peakshalfplus.jpg’. The best threshold depends on the histogram of image; different images have different best thresholds.

2-Sobel Operator

2.b (Tested on ‘peaks.jpg’) When T = 75, the result is the best. We need to adjust threshold values to produce a fair comparison.