Report

After I finished the coding thing, I choose a popular testing picture (Fig.1) to adjust my parameters.

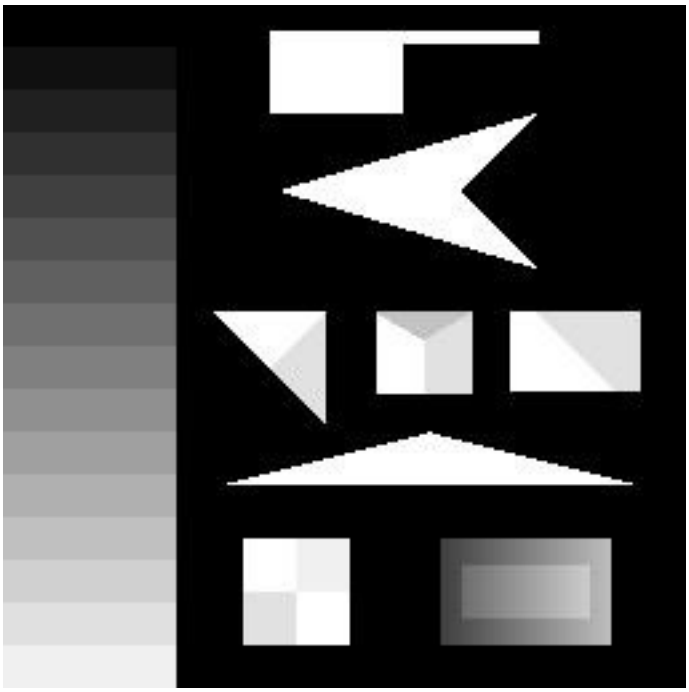

Fig. 1

1. First I choose ‘prewitt’ type (see Matlab fspecial() function) as my Ix & Iy filter. (sigma=1, threshold=2000) Fig. 2

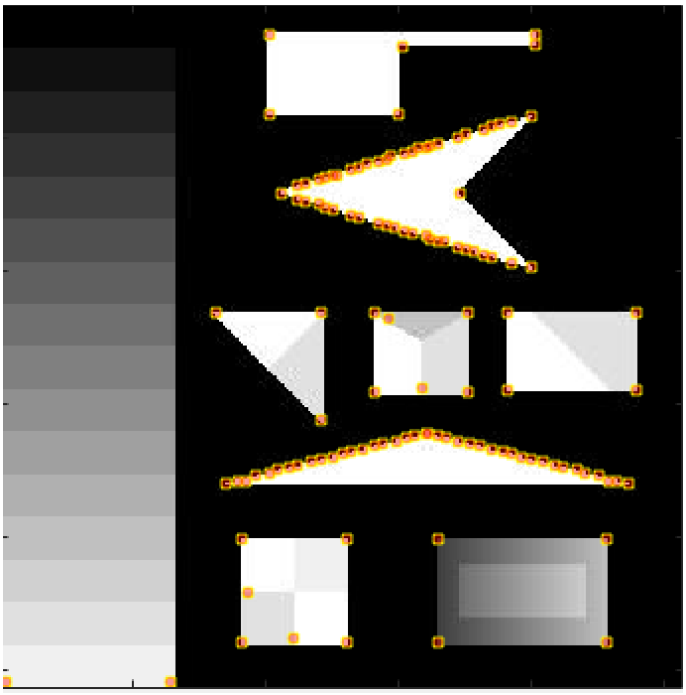

Fig. 2

As we can see from this picture, there are only part of corners detected. For the large triangle, edges also be defined as corner. The corners on the left cannot be found.

2. Then I try to use ‘sobel’ filter to test. (sigma=1, threshold=2000) Fig.3

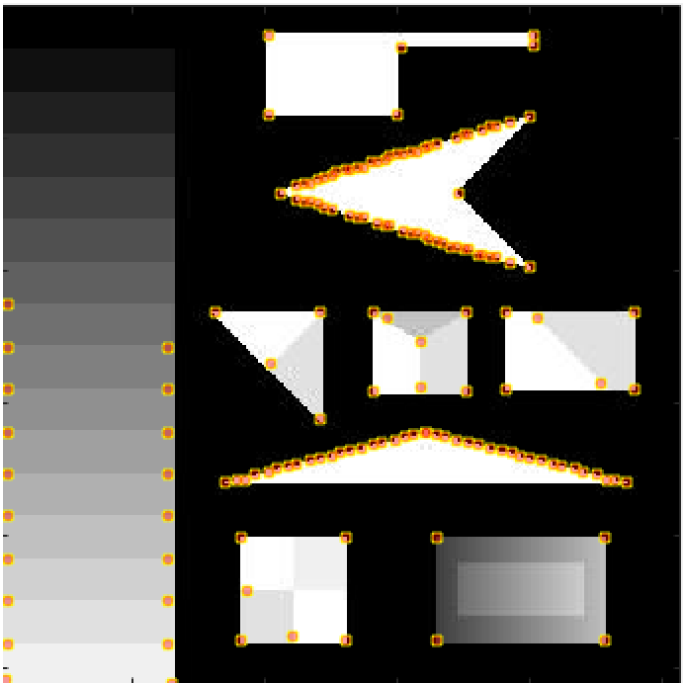

Fig. 3

Now I can detect part of the left corners, but the problems on the triangle still exist. But by using ‘sobel’ filter, we can detect some kinds of low-contrast but bright corners.

3. Next, I try to change the threshold to get more corners (sigma=1, threshold=1000). Fig. 4

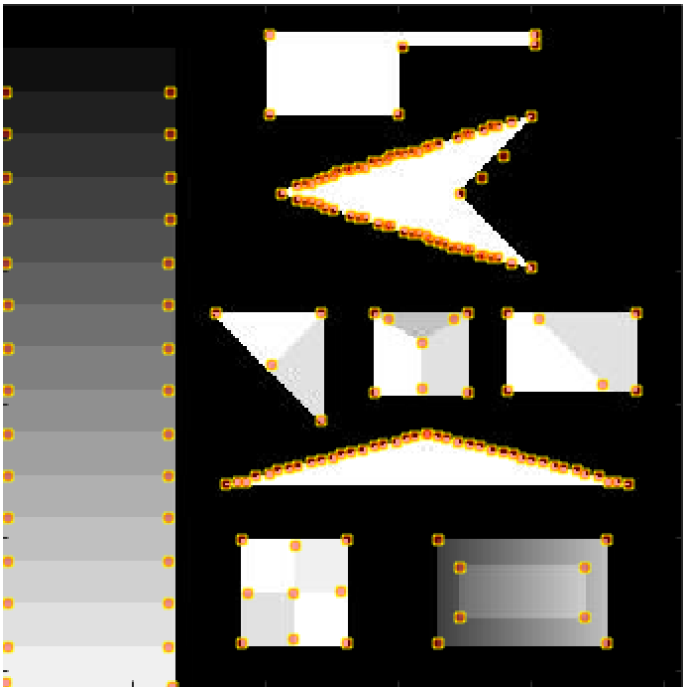

Fig. 4

Clearly, low threshold can find out more potential corners. So if we want to find more corners in a picture, change the scale of threshold is helpful.

4. Changing the size of sigma can help to improve the performance of detecting the edges of triangle. But not very helpful. (sigma=2, threshold=1000) Fig. 5

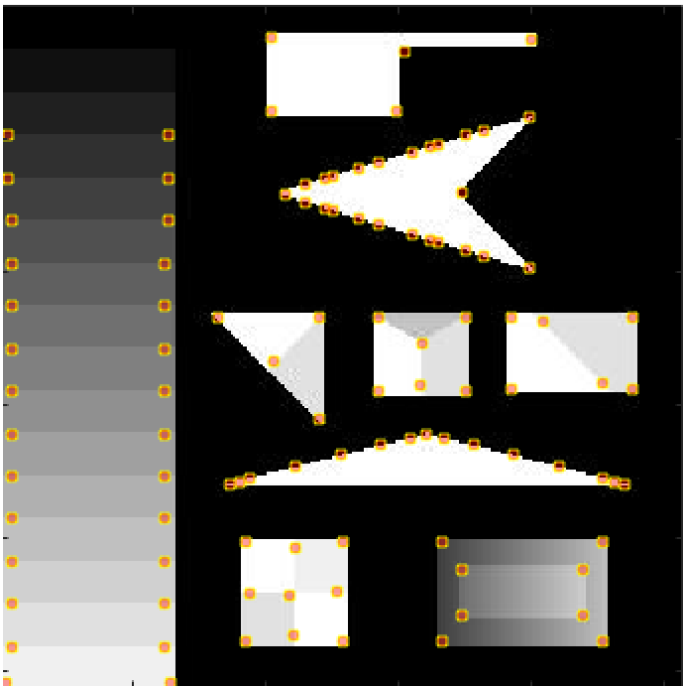

Fig. 5

5. Use my own picture to run this updated program.

Summary:
For this project, I use ‘sobel’ filter to detect corners. But if the picture include triangle-like shape. Increasing the scale of threshold, we can detect more low-contrast corners.