

# Edges and contours

COMPUTER VISION – LAB 2

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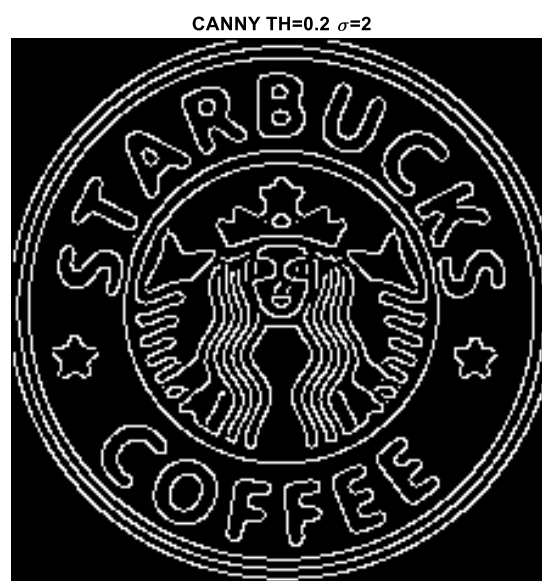
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## 1- Determine the optimal edges



*Figure 1: Original image and its edges using 3 different methods*

Sobel and Prewitt methods give a similar result, the Laplacian of gaussian method has an extra parameter, the sigma, which allows us to tune and get different results, if the sigma increases, the noise decreases but the image become blurrier.



*Figure 2: Edge detection using canny filter*

The 'edge' method in MATLAB allow us to use 7 different methods, the 4 we have used, the Roberts method, the Zero cross method, and an approximation of the canny method.

In my opinion, the best edge detecting method is the Canny method because it is more sensitive to small edges and refuses better the noise than the other methods.

When trying all the methods with different images I have seen that the Canny method is the most consistent with fixed parameters. However, the results would be far better if we adapt the parameters to each one of the images.

## 2- Displaying color images

FRAME 1



*Figure 3: Frame number 1 of the video after applying edge detection*

FRAME 250



*Figure 4: Frame number 250 of the video after applying edge detection*

FRAME 500



*Figure 5: Frame number 500 of the video after applying edge detection*

FRAME 750



*Figure 6: Frame number 750 of the video after applying edge detection*

In this part of the exercise, for edge extraction we have used the Canny method with a threshold of 0.2 and a standard deviation of 2. As seen in figures from 3 to 6 we can observe that these parameters are the optimal ones in order to detect as much as the buildings but without detecting too much noise on the sea.

The advantages of doing that is that if we want to do some building detection or background extraction it would be a good method thanks to its stability.

Its drawback is that the sea can easily confuse the system by making it see edges in the waves.