

**Lab 5 Assignment**

**CMSE 424**

**Image Processing**

**Çağıl Peköz 17330172**

**Lab 5 Task**

**E1)** I used Fig1 here to test out the edge detects. As the list goes down, the amount of edge details are increasing.

****

Edge detection on Fig2. Again, as the list goes down we can see more and more details detected.

****

**E2)** I applied the noise on the Fig1 and Fig2, just to show the noises, I will attach Fig1 with noise only.



E2) Fig1 (Noise and Laplacian Detection)



Fig1 (Noise and Canny Detection)



Fig2 (Noise and Laplacian Detection)



Fig2 (Noise and Canny Detection)



Edge detection worked really well before applying the noise. As I have mentioned, as the list went down, more details could be visible for the image. So, Sobel, Prewitt and Roberts can be used to outline the object in the image, and Laplacian, Zero-Cross and Canny can be used to outline the details and the object.

For when the noise was applied, things have changed. Noise really messed up the edge detection. As it can be seen from the above figures, especially Salt & Pepper noise ruined the edge detection no matter what edge detection method was applied to the image. On both Figures, the both edge detection methods worked very similarly. But for Fig1, in my opinion, Laplacian Method worked best because you can see the different parts of the image better, and edge detection isn’t as intrusive. Canny took in a lot of details and made the image harder to read.

As it can be seen from the Figure 1 and 2 (the first 2 images), it can be concluded that Laplacian is less detailed and Canny is more detailed. This can also be said by looking at last 4 figures, Canny always captured my edge details than Laplacian, it can be excessive but it might be useful depending on which area the edge detection is going to be used for.