```
%Isabela Resendez A01194082
%Edge Detection
%Semana 1 Sesion 2
```

Cargar Imagenes

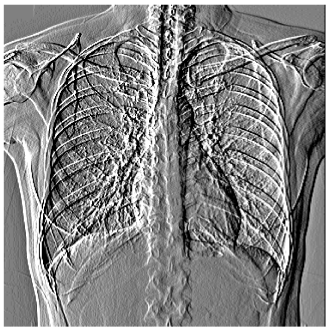
```
f=imread('radiograph1.jpg');
f=imresize(f,0.25);
f=double(f(:,:,1));
imshow(f,[])
```

Utilizar Mascara

```
edgex=[1,-1] % crear mascara
```

```
edgex = 1×2
     1    -1
```

```
g1=conv2(f,edgex,'same'); %convolution
imshow(g1,[-10,10]); % proyectar imagen convolucion
```



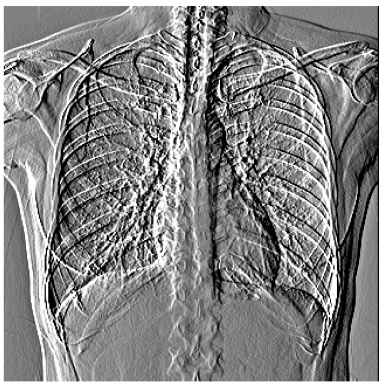
```

```

```
edgey=[-1 -2 -1;0,0,0;1,2,1]/8
```

```
edgey = 3×3
   -0.1250   -0.2500   -0.1250
         0         0         0
    0.1250    0.2500    0.1250
```

```
g2=conv2(f,edgey,'same');
imshow(g2,[-10,10])
```

```
figure(2)
subplot(1,2,1)
imshow(g1,[-10,10])
subplot(1,2,2)
imshow(g2,[-10,10])
```



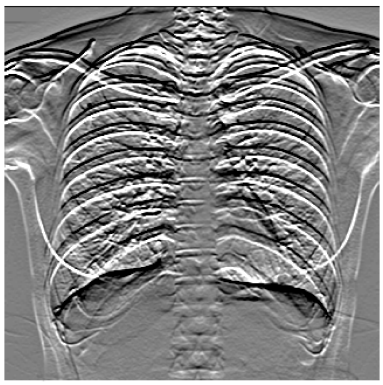
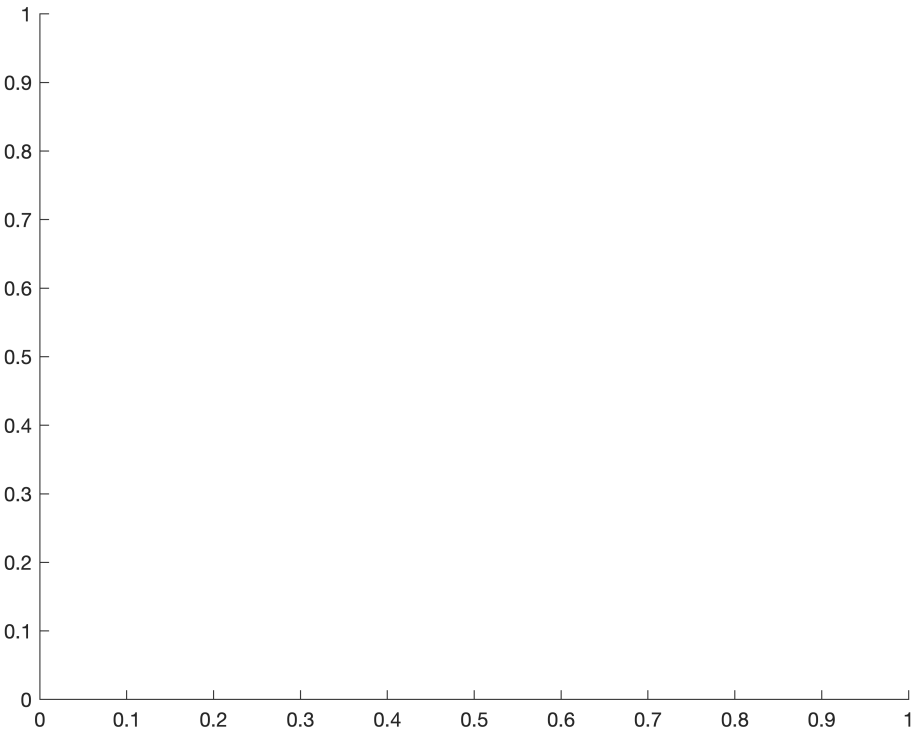


Figure 3

```
figure(3)
subplot(1,1,1)
```

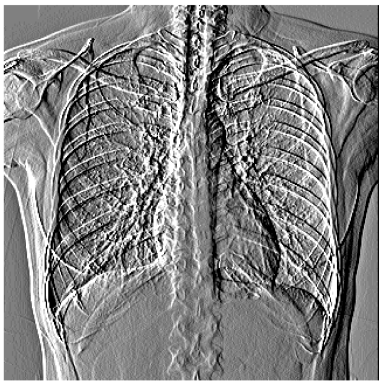


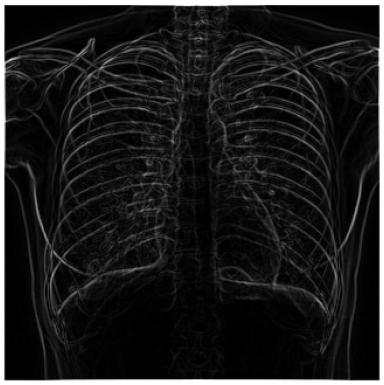
Sobel Mask Dx y Dy para Image Gradient

```
edgex=[1,0,-1;2,0,-2;1,0,-1]/8
```

```
edgex = 3×3
    0.1250         0   -0.1250
    0.2500         0   -0.2500
    0.1250         0   -0.1250
```

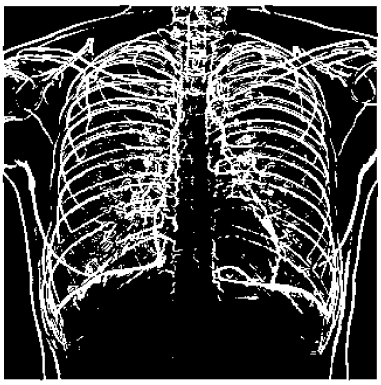
```
gx=conv2(f,edgex,'same');
gy=conv2(f,edgey,'same');
mag=abs(gx)+abs(gy); % magnitud gradiente
imshow(mag,[]);
```





Estimar Nivel de Ruido

```
noisemask = [-1, 0 1];
noiseimage = conv2(f,noisemask,'same');
noisevariance = mean2(noiseimage.^2);
noisestd = sqrt(noisevariance/2);
edgedetection1 = mag > noisestd;
edgedetection2 = mag > 2*noisestd;
subplot(1,2,1)
imshow(edgedetection1,[]);
subplot(1,2,2)
imshow(edgedetection2,[]);
```



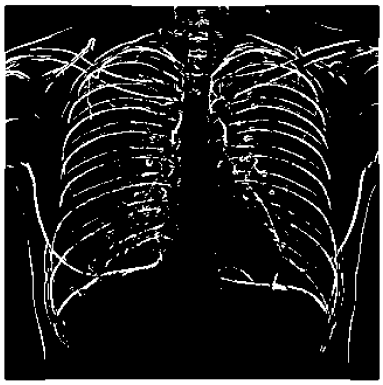
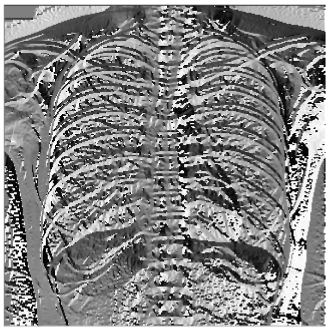


Figure 4

```
figure(4)
subplot(1,1,1)
angle=atan2(gy,gx);
imshow(angle,[]);
```



```

```

```
edgcany=edge(f,'Canny');
imshow(edgcany,[]);
```