

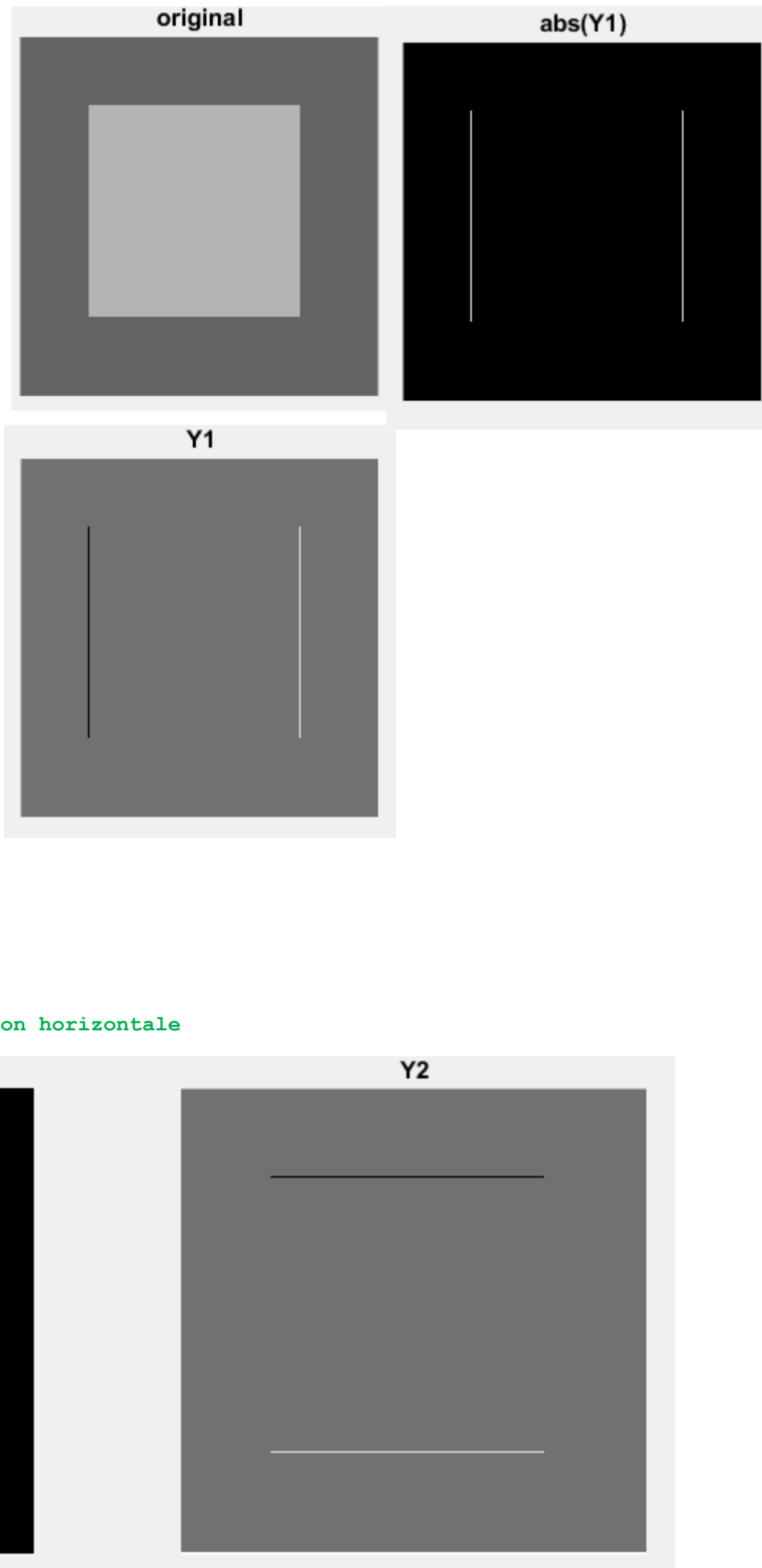
```
clear all; clc;
X=ones(256,256).*100;
X(50:200,50:200)=180;
X1=double(X)/256;

%%%FILTRE GRADIENT%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%
h1=[1 -1]; h2=transpose(h1);
Y1=imfilter(X1,h1);

L=mat2gray(abs(Y1));
L1=mat2gray(Y1);
figure(1);
subplot(2,2,1);
imshow(X1); title('original');
subplot(2,2,2);
subplot(2,2,3);
imshow(L); title('abs(Y1)');
subplot(2,2,3);
imshow(L1); title('Y1');
```

on remarque qu'il y a un contour de direction verticale

```
Y2=imfilter(X1,h2);
M=mat2gray(abs(Y2));
M1=mat2gray(Y2);
figure(2);
subplot(1,3,1);
imshow(X1); title('original');
subplot(1,3,2);
imshow(M); title('abs(Y2)');
subplot(1,3,3);
imshow(M1); title('Y2');
on remarque un contour de direction horizontale
```

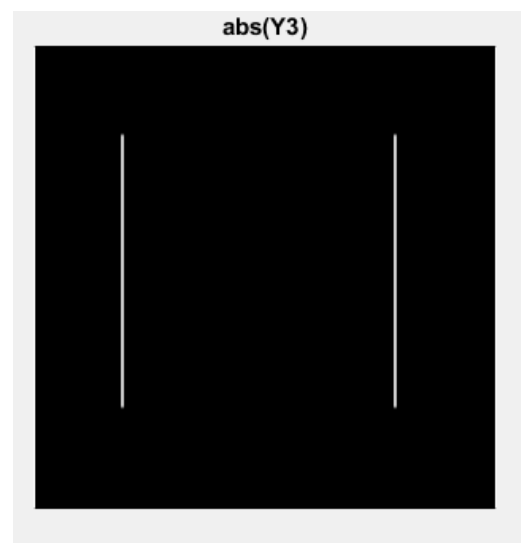
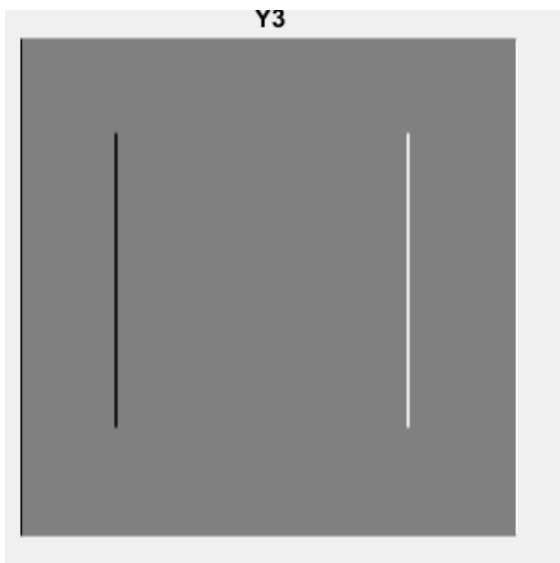


```

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%% SOBEL %%%%%%%%%
h3=([1 0 -1;2 0 -2;1 0 -1]); h4=([2 1 0;1 0 -1;0 -1 -2]);
h5=([1 2 1;0 0 0;-1 -2 -1]); h6=([0 1 2;-1 0 1;-2 -1 0]);

Y3=imfilter(X1,h3);
P=mat2gray(abs(Y3));
P1=mat2gray(Y3);
figure(3);
subplot(1,3,1);
imshow(X1); title('original');
subplot(1,3,2);
imshow(P,[]); title('abs(Y3)');
subplot(1,3,3);
imshow(P1,[]); title('Y3');  on remarque un contour vertical

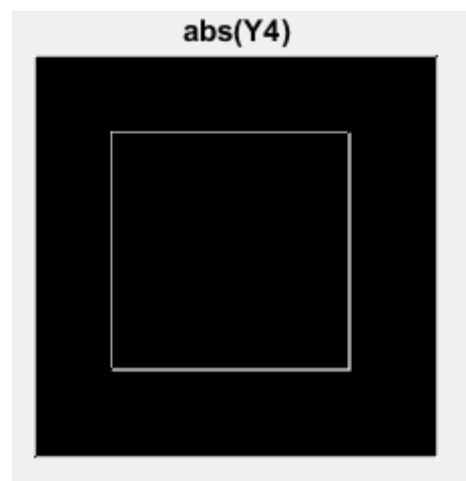
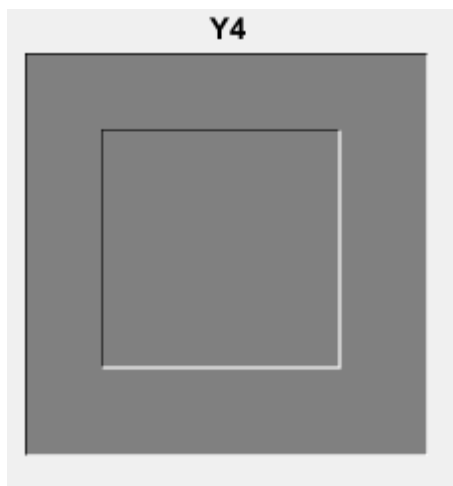
```



```

Y4=imfilter(X1,h4);
P4=mat2gray(abs(Y4));
P41=mat2gray(Y4);
figure(4);
subplot(1,3,1);
imshow(X1); title('original');
subplot(1,3,2);
imshow(P4,[]); title('abs(Y4)');
subplot(1,3,3);
imshow(P41,[]); title('Y4'); % donne un contour
horizontal et vertical%

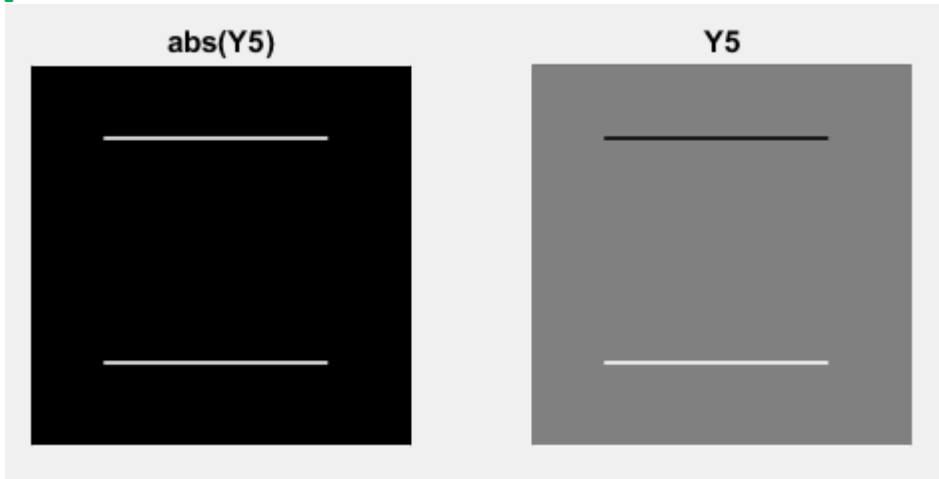
```



```

Y5=imfilter(X1,h5);
P5=mat2gray(abs(Y5));
P51=mat2gray(Y5);
figure(5);
subplot(1,3,1);
imshow(X1); title('original');
subplot(1,3,2);
imshow(P5,[]); title('abs(Y5)');
subplot(1,3,3);
imshow(P51,[]); title('Y5'); un contour horizontal pareil à celui de h2 mais plus
précis et exacte

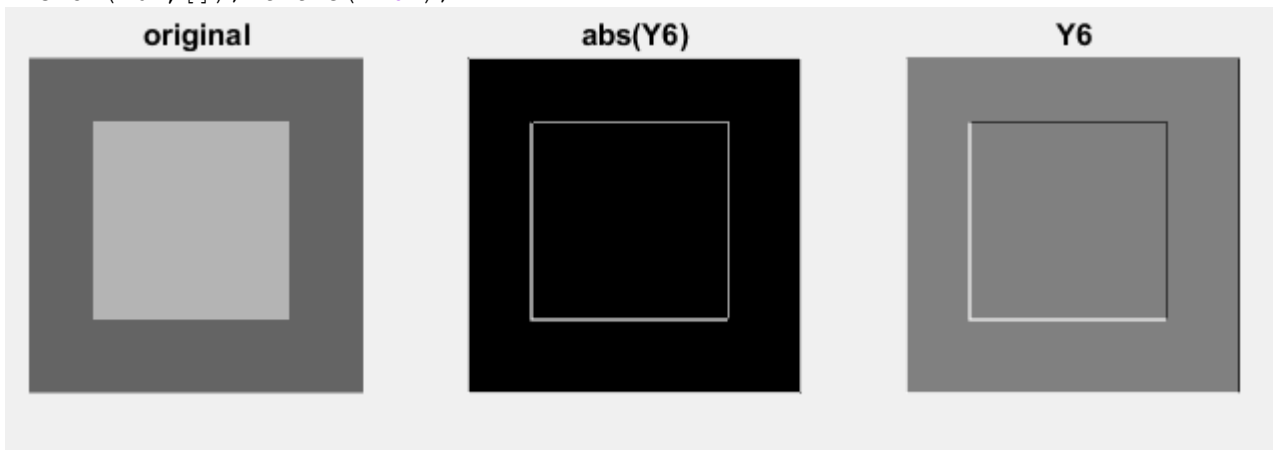
```



```

Y6=imfilter(X1,h6);
P6=mat2gray(abs(Y6));
P61=mat2gray(Y6);
figure(6);
subplot(1,3,1);
imshow(X1); title('original');
subplot(1,3,2);
imshow(P6,[]); title('abs(Y6)');
subplot(1,3,3);
imshow(P61,[]); title('Y6');

```



```

%%%%%%%%% LAPLACIEN %%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
h7=([0 1 0;1 -4 1;0 1 0]).*(1/8);

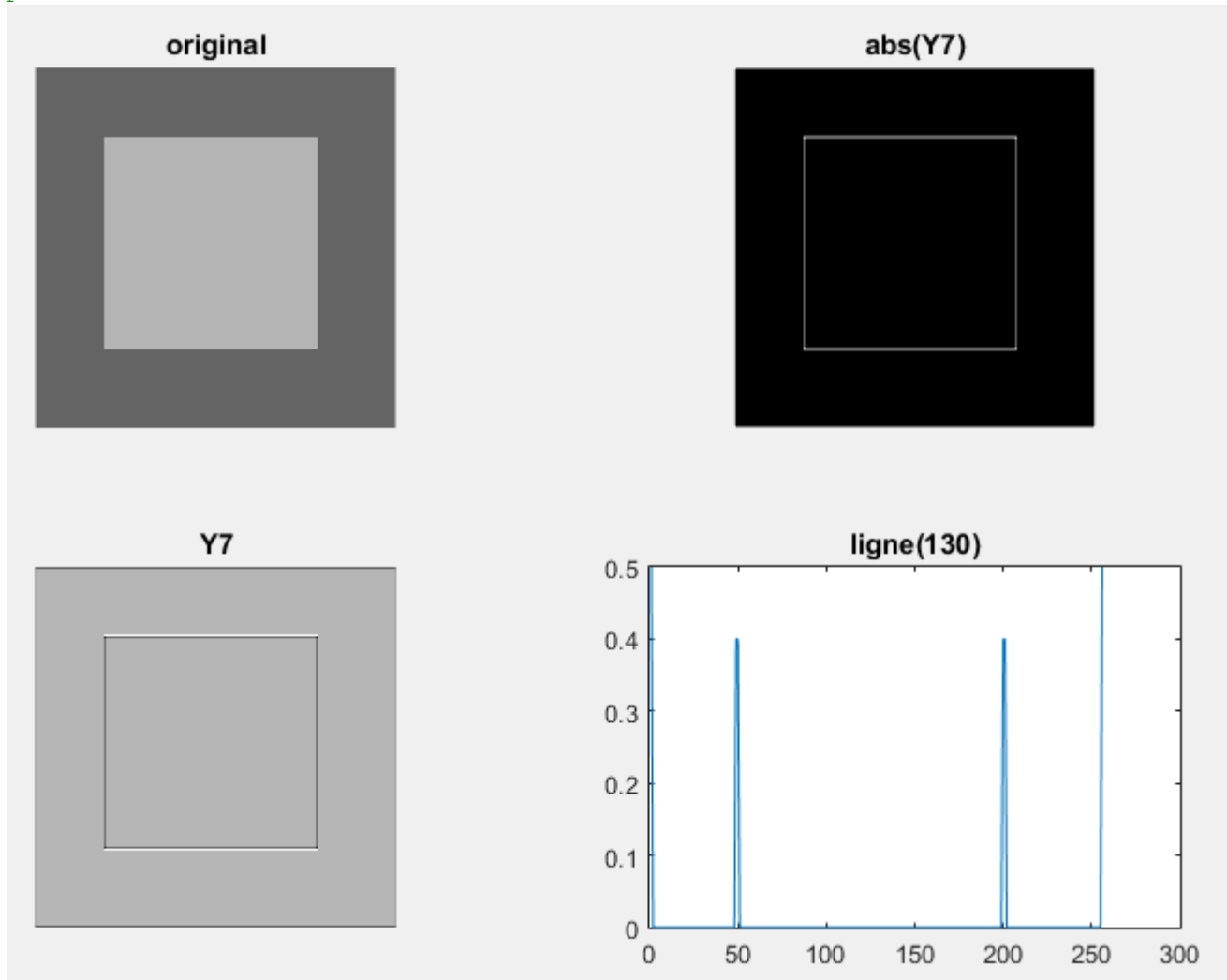
```

```

Y7=imfilter(X1,h7);
P7=mat2gray(abs(Y7));
P71=mat2gray(Y7);
figure(7);
subplot(2,2,1);
imshow(X1); title('original');
subplot(2,2,2);
imshow(P7,[]); title('abs(Y7)');
subplot(2,2,3); %on remarque que le filtre Laplacien donne un contour mais pas bien
réhaussée%

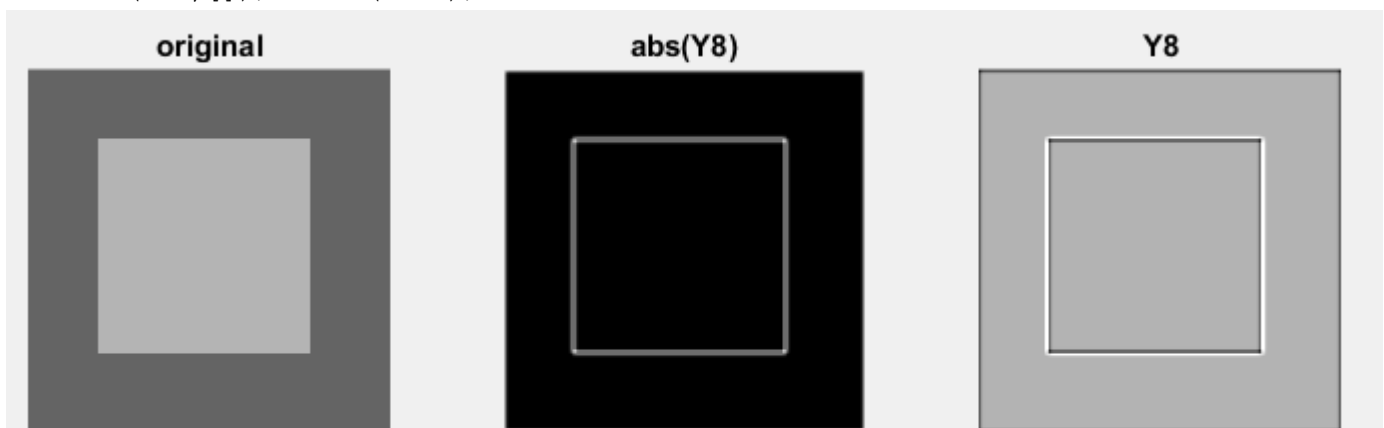
```

```
imshow(P71,[]); title('Y7'); %contour en blanc vertical et horizontal%
subplot(2,2,4);
plot(P7(130,:)); title('ligne(130)');% on remarque un pique exactement au niveau de
pixel frontière entre foncé et clair%
```

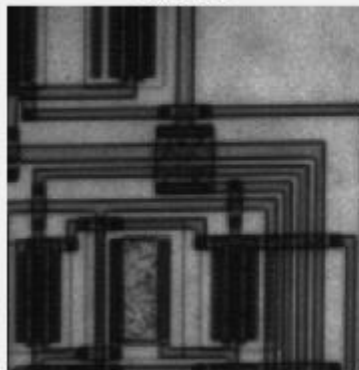


%on remarque que le contour dépend de la position de zéros et des uns ds le
%masque du filtre%

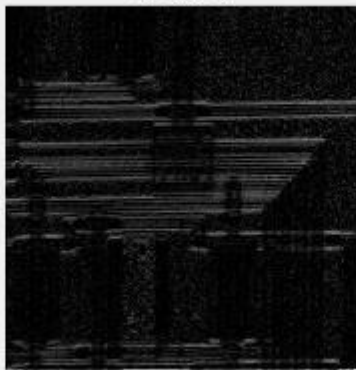
```
%%%FILTRE LOG %%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
h8=fspecial('log',[15 15],1);
Y8=imfilter(X1,h8);
P8=mat2gray(abs(Y8));
P81=mat2gray(Y8);
figure(8);
subplot(1,3,1);
imshow(X1); title('original');
subplot(1,3,2);
imshow(P8,[]); title('abs(Y8)');
subplot(1,3,3);
imshow(P81,[]); title('Y8');
```



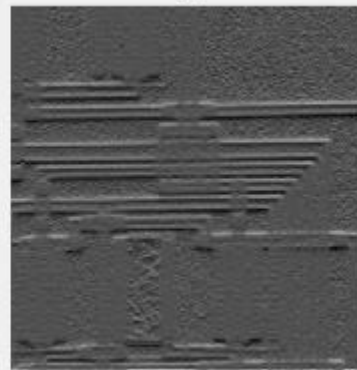
original



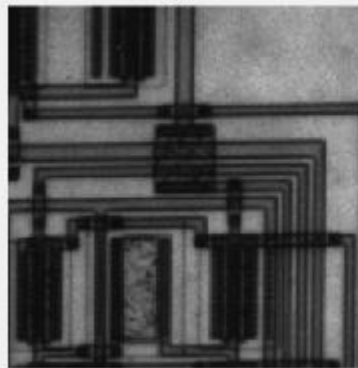
abs(Y2)



Y2



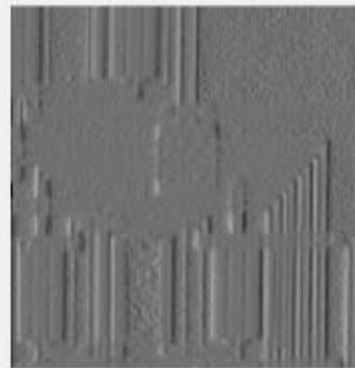
original



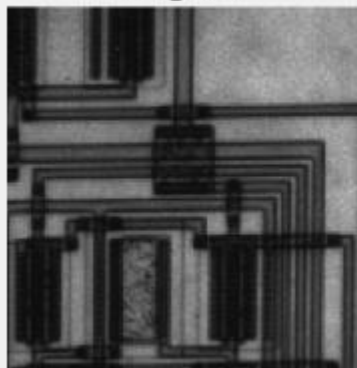
abs(Y3)Sobel h3



Y3



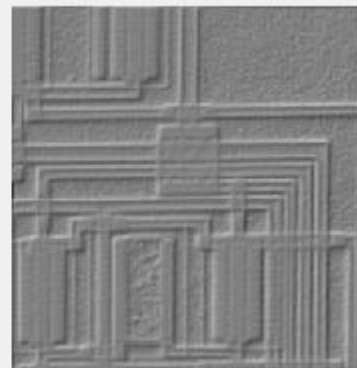
original



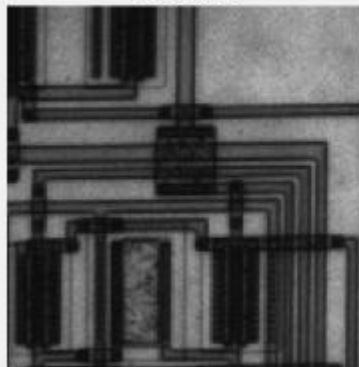
abs(Y4)sobel h4



Y4



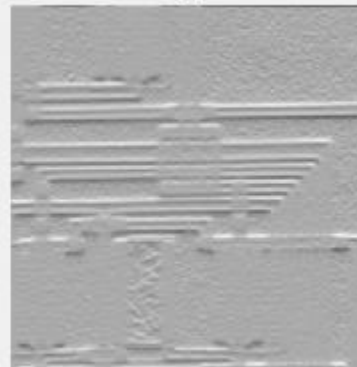
original



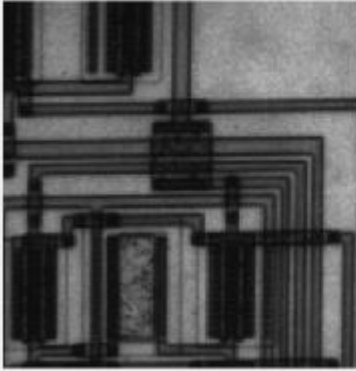
abs(Y5)Sobel h5



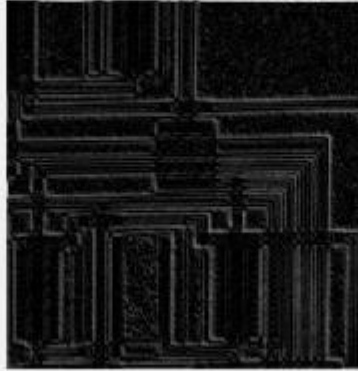
Y5



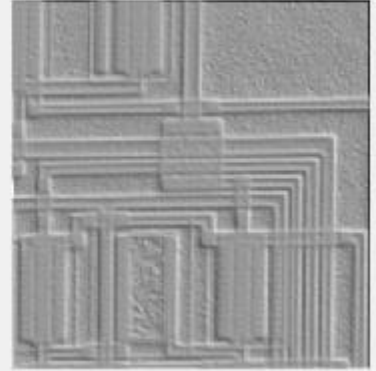
original



abs(Y6)



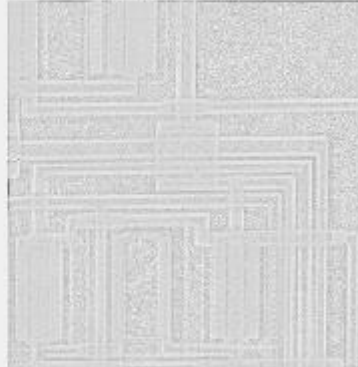
Y6



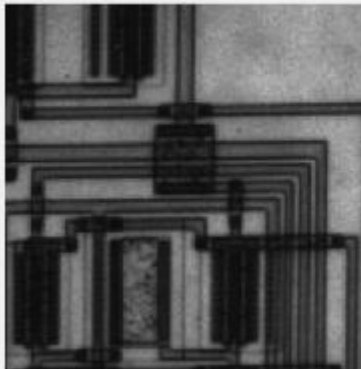
abs(Y7)Laplacien



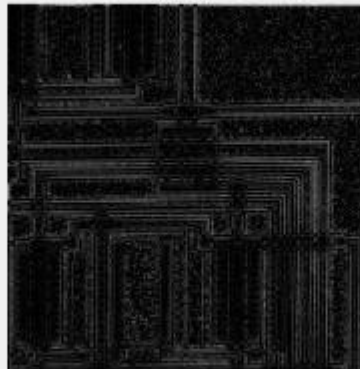
Y7 Laplacien



original



abs(Y8)LOG



Y8 LOG

