Mapping

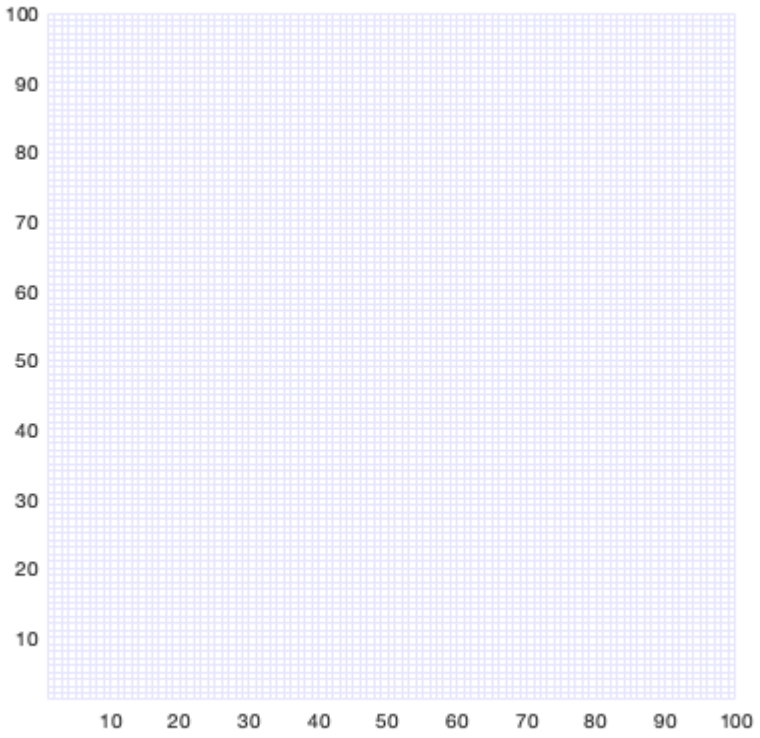
Use the idea behind the line tracing

Visit: https://es.wikipedia.org/wiki/Algoritmo_de_Bresenham

```
A=ones(100,100)
```

```
A = 100×100
     1     1     1     1     1     1     1     1     1     1     1     1     1 ···
     1     1     1     1     1     1     1     1     1     1     1     1     1
     1     1     1     1     1     1     1     1     1     1     1     1     1
     1     1     1     1     1     1     1     1     1     1     1     1     1
     1     1     1     1     1     1     1     1     1     1     1     1     1
     1     1     1     1     1     1     1     1     1     1     1     1     1
     1     1     1     1     1     1     1     1     1     1     1     1     1
     1     1     1     1     1     1     1     1     1     1     1     1     1
     1     1     1     1     1     1     1     1     1     1     1     1     1
     1     1     1     1     1     1     1     1     1     1     1     1     1
     ⋮
```

```
s=pcolor (A);
colormap(gray(2))
s.EdgeColor = [0.9 0.9 1];
axis square
```




```
[x y]=bresenham(0 ,0,10,40)
```

```
l_xy = 41×2
     0     0
     0     1
     0     2
     1     3
     1     4
     1     5
     1     6
     2     7
     2     8
     2     9
     ⋮
```

```
L=length(l_xy)
```

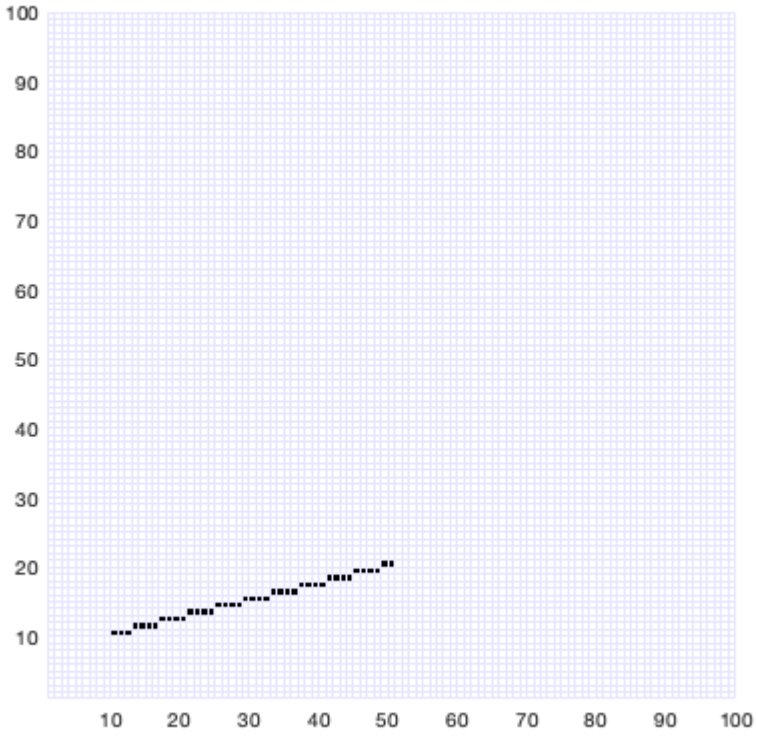
```
L = 41
```

```
P_w=transl(10,10,0)*[l_xy zeros(1,L)' ones(1,L)']'
```

```
P_w = 4×41
    10    10    10    11    11    11    11    12    12    12    12    13    13 ···
    10    11    12    13    14    15    16    17    18    19    20    21    22
     0     0     0     0     0     0     0     0     0     0     0     0     0
     1     1     1     1     1     1     1     1     1     1     1     1     1
```

```
for i=1:L
    A(P_w(1,i),P_w(2,i))=0;
end
```

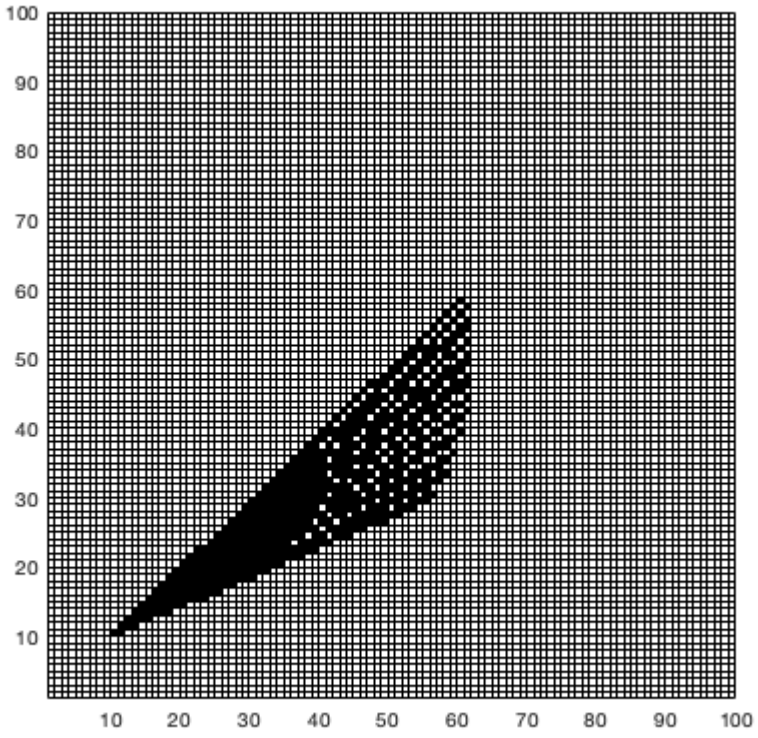
```
s=pcolor (A);
s.EdgeColor = [0.9 0.9 1];
colormap(gray(2))
axis square
```



Animation

```
clear
A=ones(100,100);
Laser_data=[10 40 0 1]';
for j=1:20
    P_w=transl(50,20,0)*trotz(j*pi/80)*Laser_data;% Laser wordl
    l_xy=bresenham([10 10],round([P_w(1) P_w(2)]));
    L=length(l_xy);
    for i=1:L
        A(l_xy(i,1),l_xy(i,2))=0;
    end
    pcolor (A)
    colormap(gray(2))
    axis square
    pause(0.9)
    drawnow

end
```


100
90
80
70
60
50
40
30
20
10
10
20
30
40
50
60
70
80
90
100