Sobel edge detector

Vertical detector

Example: vertical detector

0	0	10	10	10
0	0	10	10	10
0	0	10	10	10
0	0	10	10	10
0	0	10	10	10
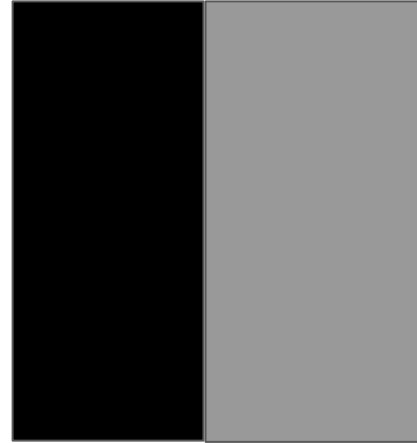
Example: vertical detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	0	-1
2	0	-2
1	0	-1

0	30			

= abs(1*0 + 0*0 + (-1)*0 + 2*0 + 0*0 + 10(-2) + 1*0 + 0*0 + 10(-1)) = 30

Example: vertical detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	0	-1
2	0	-2
1	0	-1

0	30	30		

Example: vertical detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	0	-1
2	0	-2
1	0	-1

0	30	30	0	

Example: vertical detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	0	-1
2	0	-2
1	0	-1

0	30	30	0	30

Example: vertical detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	0	-1
2	0	-2
1	0	-1

0	30	30	0	30
0				

Example: vertical detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	0	-1
2	0	-2
1	0	-1

0	30	30	0	30
0	40			

Example: vertical detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	0	-1
2	0	-2
1	0	-1

0	30	30	0	30
0	40	40		

Example: vertical detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	0	-1
2	0	-2
1	0	-1

0	30	30	0	30
0	40	40	0	

Example: vertical detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	0	-1
2	0	-2
1	0	-1

0	30	30	0	30
0	40	40	0	40

AI final...

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	0	-1
2	0	-2
1	0	-1

0	30	30	0	30
0	40	40	0	40
0	40	40	0	40
0	40	40	0	40
0	30	30	0	30

Horizontal detector

Example: horizontal detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	2	1
0	0	0
-1	-2	-1

0	10			

= abs(1*0 + 2*0 + 1*0 + 0*0 + 0*0 + 0*10 + (-1)*0 + (-2)*0 + 10(-1)) = 10

Example: horizontal detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	2	1
0	0	0
-1	-2	-1

0	10	30		

Example: horizontal detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	2	1
0	0	0
-1	-2	-1

0	10	30	40	

Example: horizontal detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	2	1
0	0	0
-1	-2	-1

0	10	30	40	30

Example: horizontal detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	2	1
0	0	0
-1	-2	-1

0	10	30	40	30
0				

Example: horizontal detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	2	1
0	0	0
-1	-2	-1

0	10	30	40	30
0	0			

Example: horizontal detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	2	1
0	0	0
-1	-2	-1

0	10	30	40	30
0	0	0		

Example: horizontal detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	2	1
0	0	0
-1	-2	-1

0	10	30	40	30
0	0	0	0	

Example: horizontal detector

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	2	1
0	0	0
-1	-2	-1

0	10	30	40	30
0	0	0	0	0

AI final...

0	0	0	0	0	0	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	10	10	10	0
0	0	0	0	0	0	0

1	2	1
0	0	0
-1	-2	-1

0	10	30	40	30
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	10	30	40	30