Experiment 15

Line Detection

In Edge Detection, a pixel is attenuated, if there is a dramatic change in color in any direction. Line detection is a special kind of edge detection. For line detection, the direction in which a color changes is considered is restricted.

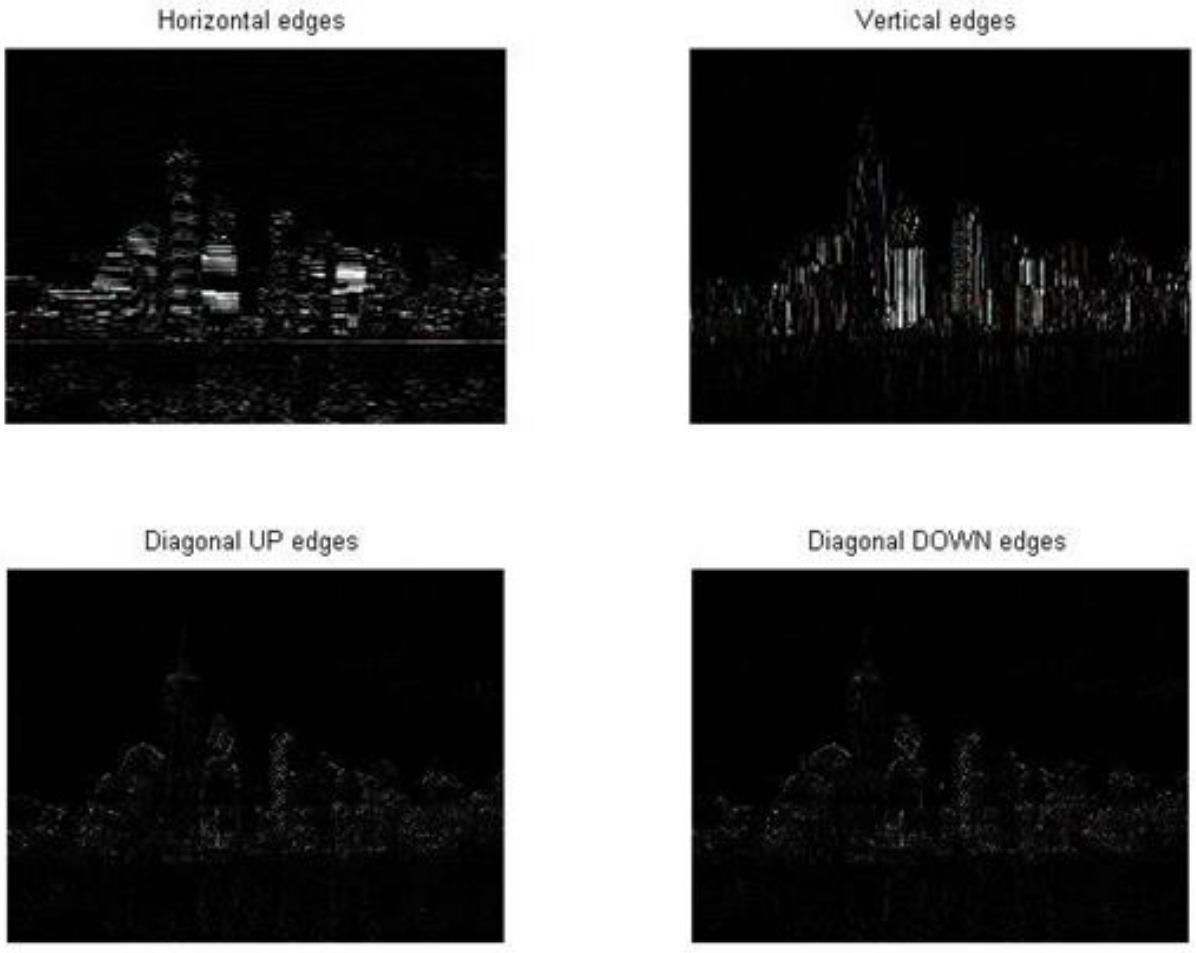
The common filter kernels are

```
edge = [-1 -1 -1;- 1 8 -1;-1 -1 -1];
horizontal = [-1 -1 -1;2 2 2;-1 -1 -1];
vertical = [-1 2 -1;-1 2 -1;-1 2 -1];
diagonal_1 = [-1 -1 2;-1 2 -1; 2 -1 -1];
diagonal_2 = [2 -1 -1;-1 2 -1;-1 -1 2];
```

```
building = imread('build.jpg');
imshow(building), title('ORIGINAL IMAGE')
```

```
horizontal_building = imfilter(building, horizontal);
vertical_building = imfilter(building, vertical);
diagonal_1_building = imfilter(building, diagonal_1);
diagonal_2_building = imfilter(building, diagonal_2);
```

```
subplot(221),imshow(horizontal_building), title('Horizontal edges')
subplot(222),imshow(vertical_building), title('Vertical edges')
subplot(223),imshow(diagonal_1_building), title('Diagonal UP edges')
subplot(224),imshow(diagonal_2_building), title('Diagonal DOWN edges')
```



Conclusion

Common filter kernels used to detect horizontal, vertical and diagonal edges in the input image successfully.

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