Edge Detection

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1 Edge Detection

Use opencv and the Canny method for edge detection. The parameters to the Canny function are image, min value, and max value.

Canny edge detection using the following steps

1. Apply a Gaussian filter to remove the noise and smooth the image
2. Calculate image intensity gradients
3. Use non-maximum suppression to get rid of spurious results for edge detection
4. Apply a double threshold to the intensity gradients to determine potential edges
5. Suppress the edges that are weak and not connected to strong edges. This is a hysteresis process.

```
In [1]: import numpy as np
        import cv2

        import matplotlib.pyplot as plt
        %matplotlib inline
```

```
In [2]: def detect_edges(image_path):

            # Load image
            img = cv2.imread(image_path)

            # Detect edges
            edges = cv2.Canny(img, threshold1= 100, threshold2 = 200)

            # Plot original and edge image
            plt.figure(figsize=(10, 8))
            plt.subplot(121); plt.imshow(img, cmap='gray')
            plt.title('Original Image'); plt.axis('off');
            plt.subplot(122); plt.imshow(edges, cmap='gray')
            plt.title('Image with Edges'); plt.axis('off')
            plt.show();
```

```
In [3]: detect_edges('images/german_street.jpg')
```


```
In [4]: detect_edges('images/road_scene.jpg')
```