

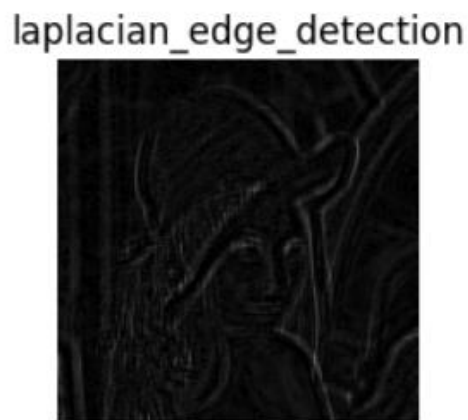
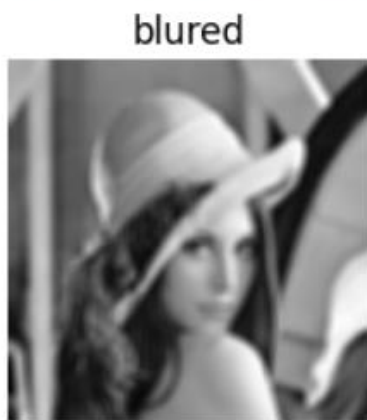
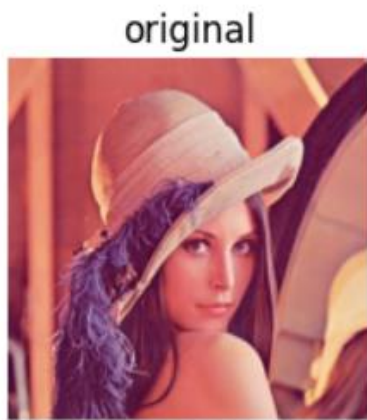
# Comparison Report

## 1-Laplacian edge detection

Its sensitive to noise and can produce results with noise (we can conclude that from the below figure).

### Characteristics

- 1-Detects edges based on rapid changes in intensity.
- 2-Effective at detecting edges but may produce noisy results.
- 3-Typically used for simple edge detection tasks and as a pre-processing step for more advanced methods.

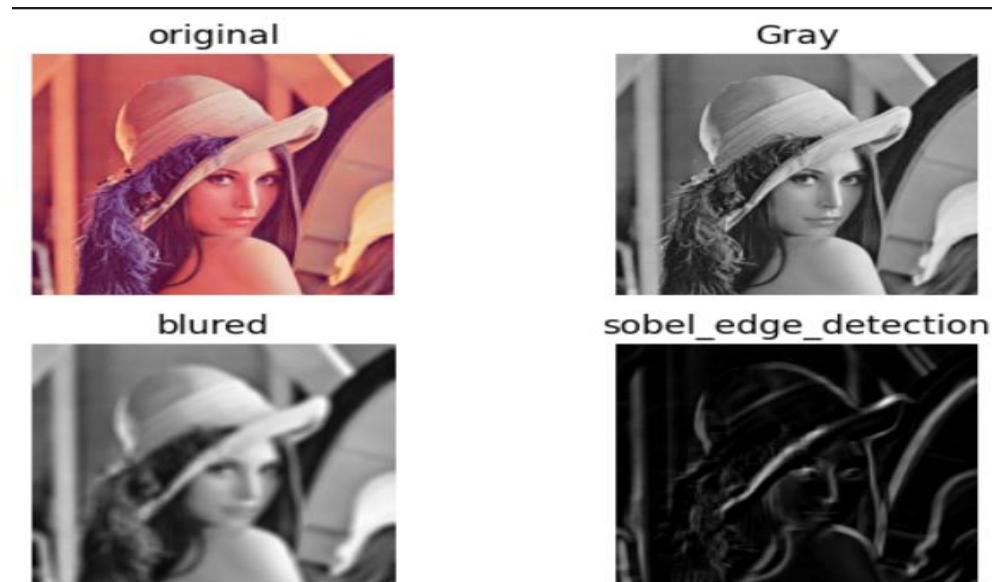


## 2-Sobel edge detection

It performs edge detection in both horizontal and vertical directions, combining these results to provide a measure of edge strength and direction.

### Characteristics

- 1-Less sensitive to noise compared to Laplacian, due to its gradient-based approach.
- 2-Commonly used for detecting edges in images while maintaining edge orientation information.



## 3-canny edge detection

It is like Sobel edge detection but it is more accurate and it uses Non-maximum suppression technique to make the edges more thin.

### Characteristics

- 1- Performs well in detecting true edges and suppressing noise.
- 2- Preferred in many applications for its balance between detecting edges and suppressing noise.

