EDGE DETECTION METHODS

CLARITY

Laplacian: This method produces clear edges but it can't remove noise so the photo can be noisy.

Sobel: This method produces clearer edges and smooths the image to some extent through convolution.

Canny: This method produces the highest clarity among the three methods. It uses a Gaussian filter to smooth the image before edge detection, which helps reduce noise and ensures that edges are detected more distinctly.

ACCURACY

Laplacian: This method can be less accurate in edge detection because it may produce double edges and is highly sensitive to noise due to the lack of a pre-smoothing step

Sobel: This method gives better edge detection and it balances between noise sensitivity and edge detection accuracy.

Canny: This method is known for its high accuracy. It employs multiple stages, including Gaussian smoothing, gradient calculation and effectively distinguishes between strong and weak edges.

PERFORMANCE

Laplacian: This method is relatively fast because it involves straightforward convolution with a predefined mask, but its performance might be impacted by noise.

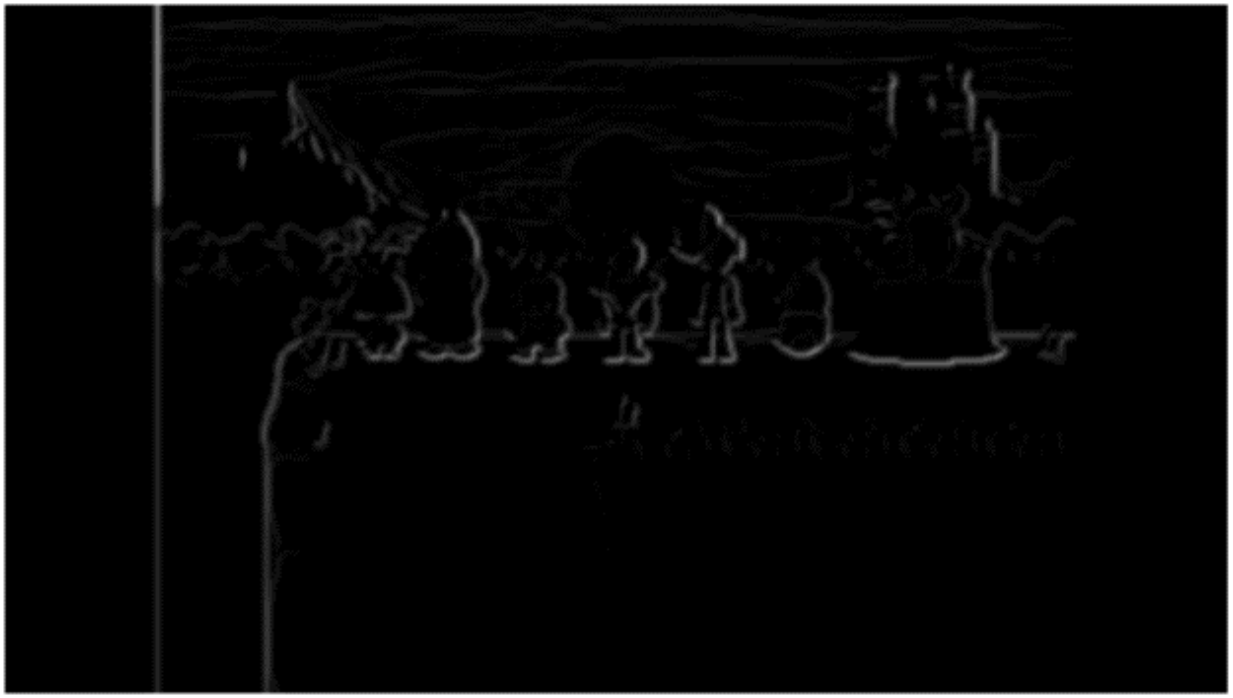
Sobel: This method is efficient and computationally less expensive than more complex methods. It involves computing gradients in two directions and is faster to compute compared to more advanced techniques.

Canny: This method is computationally more demanding because of its multi-stage process. But it provides superior results in terms of clarity and accuracy.

Original image:

Laplacian image:

Sobel image:



Canny image: