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## A comparison Study of Image Edge Segmentation Methods using Prewitt, Sobel and Laplacian of Gaussian for Medical Images

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### Abstract:

Image processing has an important and main role in several fields. It uses to understand and discover the image and its objects in efficiently and meaningful way. The understanding is a main step to extract information form image. The more realization has been established from different scientists in the field for image segmentation. The main segmentation purpose is to detect the edges information which available inside an image clearly. Edges are the important character for image and it has produced by summaries of the things. Mostly, Edge detection steps and its techniques have employed to evaluate and analysis of image characteristic. Many and several kinds of techniques for detecting the edges from any type of images. This paper has achieved the comprehensive analysis about the many edge detection techniques like Prewitt, Sobel and Laplacian of Gaussian. The comparisons are in terms PSNR (Peak signal to noise ratio), SNR (Signal to noise ratio) and Entropy. Finally, experimentally observed that Laplacian of Gaussian technique is working well and recorded better results than others techniques.

**Keywords:** Image segmentation, Edge detection, Prewitt, Sobel, Laplacian of Gaussian, PSNR, SNR

### 1. Introduction:

Digital image processing (DIP) is a technology and processes which have been achieved to increase image goodness and its recognition. This processes have used to improve the information and things that derives from the image [1]. Image consider a vital multimedia characters that has a necessary part as a method of visible information [2]. Image has features which are rich and several information and that not had in text way and based on its color has separated for gray and color scales. Image delivers extra features than information which offered in text figure [3]. Image segmentation is a steps to simplify a digital image into segments or pixels that are easier to analyze and recognize the active edges in a difficult image. Familial image segmentation techniques that achieved a lot by the researchers are Edge Detection, Threshold, Histogram, Region based techniques, and Watershed Transformation. [4].

Hence, image segmentation of color images is completely unlike with gray scale images, e.g., content depended image recovery [5]. Any technique is strong and works fully is based on the kind of image. The image's pixel property with its information nearby to that pixel are two main factors for all techniques [6]. It showing as match of pixels in any region with gaps for edges in image. Edge depended segmentation is used to separate images based of their edges and using the threshold to insulate the background from an