

# *Abstract*

Image segmentation is a vital phase of image processing and has a wide array of applications in various areas, especially in the medical field where numerous images are produced via MRIs, CT scans, and X-rays. Among the existing techniques of segmentation, this research focuses on the enhancement of the region-growing algorithm. Implementation is done on MRI scans of brains. The objective is to segment out and detect the tumorous region within the brain. For noise removal and smoothening of images, wavelet transforms have been taken into account. The processed images are passed onto the region-growing algorithm. The initial growth requires a seed pixel to start. The seed value is determined using Connected Component Labeling, which is a graph-based technique that labels the connected pixels within an image. The region growing algorithm uses the seed value to iteratively grow and segment the image. This way the tumorous area in the brain is marked. The results of the proposed approach have been compared with the Watershed algorithm based on segmented regions and resulting image quality using objective quality measures.