

## **Computer aided segmentation approach for Melanoma skin cancer detection**

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### **Abstract**

Skin cancer is the most common type of cancer in the world and nowadays, this incidence is increasing rapidly. In recent years, there has been a fairly rapid increment in melanoma skin cancer patients. Melanoma, this the deadliest form of skin cancer, must be diagnosed earlier as soon as possible for effective treatment. To diagnose melanoma earlier, skin lesion should be segmented accurately. However, the segmentation of the melanoma skin cancer lesion in traditional approach is a challenging task due to the number of false positives is large and time consuming in prediction. Hence, the development of automated computer vision system becoming as an essential tool to segment the skin lesion from given photograph of patient's cancer affected area and to overcome those difficulties, which were found in the earlier methods. This work was done through image processing techniques. Some of these techniques are widely used in similar applications, as is the case of the canny edge detection for finding the lesion boundary. Other techniques are watershed segmentation for segmenting the lesion from skin, multilevel thresholding for merging the lesion, and active contour for increasing the accuracy. Though the personnel in the medical field had introduced new methodologies to improve the accuracy by addressing the challenges and mainly focusing on the accuracy, the approach in this study achieved 97.54% sensitivity, 97.69% specificity, and 97.56% accuracy.

**Keywords:** Lesion, Segmentation, Canny edge, Thresholding, Watershed

### **Introduction**

Research is a self-motivated creative work undertaken by researchers on a systematic basis in order to seek answers to questions that arise in their minds. Information technology has changed the human beings' and their life styles and made their life very easier with the growth of technology and applications. In the modernized world, it could be inefficient when many processes are taking place at the same time, at the same place. So, there is a need to digitalize the processes in an efficient manner. Today, research and inventions are becoming a part of our culture. Cancer is one of the main non communicable diseases impacting on people across the world. With the advent of ICT technology, compared to other diseases, capture of data related to cancer is quite extensive (Biliris et al., 2000). Due to the importance of automatic segmentation for melanoma skin cancer detection, a large amount of studies have been conducted in the past years. Many studies have introduced new methodologies to improve the accuracy (Roshni et al., 2010). While the methods have focused accuracy (Vijayarani et al., 2013), the objective in this study is, to assist in the accurate identification of the specific cancer region. This development of an