## An Optimized Super Pixel Based Clustering Algorithm for Histopathalogical Images of Cancer

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## ABSTRACT

The process of examining tissues under a microscope for detecting the severity of the disease is called histology, it became very critical in biomedical research and clinical practice. Processing tissues from histopathological images has become now fully computerized, the labs can produce tissue slides for viewing images digitally, pathologist examine these digital images on a computer rather than on microscope inorder predict the seriousness of cancer. Routine analysis of tissues selection will be very difficult, manual task can be done only by trained pathologists at a huge cost. Hence cell nuclei recognition and classification plays a vital role in early diagnosis of cancer. It is a very difficult task, due to heavy noise, and small-variant sizes of cell nuclei in histology images. To address this issue, an optimization based super pixel clustering algorithm was proposed for automatic nuclei cell detection. For experimental analysis initially, the histopathological images dataset are collected from BreaKHis database. And then, preprocessing is done by applying image normalization technique to remove noisy from the images. After denoising, image segmentation is applied by utilizing super pixel with Particle Swarm Optimizer (PSO)-Gray Wolf Optimizer (GWO) algorithm for segmenting the nonnuclei and nuclei cells. The main purpose of the proposed system is to implement an efficient segmentation method for automatic nuclei cell detection, the proposed work attained good performance compared to the previous research work. Further we can extract relevant features for detection and classifying and estimate the accuracy of classifier.



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