**Abstract**

Segmentation of positron emission tomography (PET) plays a major role in research and clinical applications. The segmentation of pancreatic tumors using PET / CT is challenging due to a significant amount of noise that may result in serious segmentation inaccuracies. The evaluation of the results of segmentation in medical imaging is due to the presence of a gold standard. Therefore, the performance evaluation of these methods would be necessary. This paper suggested a new object segmentation method that is based on K-means clustering with Saliency Maps. The K-means clustering approach restricts every pixel of the image that belongs to a single cluster. One drawback with using the K-means algorithm to segment objects is that segments are not connected and can be widely scattered. It is known that using saliency region, the approximate location of the desired object in the map can easily be identified. In this proposed method, the saliency map is used to distinguish the desired object cluster from the image from the background cluster, and then, to map the object clusters together Experimental results shows that the proposed algorithm outperforms dramatically in terms of visual plausibility and computational cost compared to state-of - the-art methods and achieves excellent performance for object segmentation.