Abstract

Medical Image Processing is undergoing with lots of modifications and various image modalities due to the existence of minute artefacts. Due to such reason image segmentation of images become more cumbersome and critical task when discussed in terms of tumour pathology. The process of image segmentation became more tedious job towards collecting the images of various organs and identifying the problems within them. The major role of the current research is to segment and extract the liver Computed Tomography (CT) image. This process will help to detect various tissues and various artefacts details from the complex part of a human body. There are many types of segmentation methods using thresholding, watersheds, region growing, deformable models and also by using fuzzy set of CT Images. It is observed that a deformable model includes parametric and geometric active contours. There are many limitations while using traditional snakes, GVF snakes, balloon forces with respect to Gaussian function and Indentation.

Current research aims to segment tissues and artefacts using level set method without re-initialization approach. In the meantime it also intends to evaluate the performance of different segmentation algorithms like FCM, GVF snake model and level set. The objectives of this research will be implementing FCM algorithm for segmentation and extraction of liver region. In another objective this research employ GVF based snake model for accurate segmentation and extracts the liver region carefully. The implementation of level set without re-initialization approach and SFCM algorithms are developed for better and appropriate segmentation. The algorithm is developed for evaluating these methods for various numbers of clinical cases for establishing the feasibilities using different metrics.