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## Abstract

Automatic segmentation of parotid glands for computer-aided diagnosis in clinical practice is still a challenging task, especially when there are lesions needing to be outlined. In the applications of image-based diagnosis and computer-aided lesion detection, image segmentation is an important procedure. Features extracted from image analysis in companion with image segmentation algorithms are used to provide region-based information for clinical evaluation procedures. In this paper, we describe a method for segmenting the parotid regions with skeptical lesions in the head and neck CT images. At first, à trous, a modified discrete wavelet transform algorithm, is introduced to decompose an image into sub-bands, and the feature descriptors effective for soft tissues characteristics are computed using the derived coefficients in the sub-bands. Then, clustering algorithms are proposed to connect the pixels corresponding to similar features into several regions of the soft tissues, and so do the tissues of the lesions. In this paper, a comparative study of feature-based segmentation with three methods is carried on, and the extracted regions are compared with the segmentation from the experts for evaluating the performance.

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### Index Terms

Computer Science

Pattern Recognition

### **Keywords**

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