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AUTOMATIC SEGMENTATION AND VISUALIZATION OF PULMONARY LOBES FROM CHEST CT SCANS BASED ON FISSURES, VESSELS, AND BRONCHI

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ABSTRACT

In image processing the segmentation of image is a major task. The segmentation is related to clinical practice and challenging for causes severe diseases or incomplete fissures. First we are going to detect the foreground and background of the image. After that the automated segmentation method is used to segment the lungs. This automated segmentation method is called as Marker based watershed transformation. In this transformation the lungs divided into lobes. The lung image contains fissure, vessels and bronchi. From this segmentation result we are going to calculate the distance between the incomplete fissures. Further we draw graph from this result, this graph contains the distance between the complete fissures result. This segmentation can be analyzed by the integration of several anatomical structures is against misfissures or incomplete fissures. For evaluation the method was compared to a recently published method on 20 CT scans with no or mild disease. Finally, we analyze the relation between segment quality and incomplete fissure it shows the robust against incomplete fissures.

1. INTRODUCTION - IMAGE PROCESSING

Image processing is a method to convert an image into digital form and perform some operations on it, in order to get an enhanced image or to extract some useful information from it. It is a type of signal dispensation in which input is image, like video frame or photograph and output may be image or characteristics associated with that image. Usually Image Processing system includes treating images as two dimensional signals while applying already set signal processing methods to them. It is among rapidly growing technologies today, with its applications in various aspects of a business. Image Processing forms core research area within engineering and computer science disciplines too.

Image processing basically includes the following three steps. Importing the image with the optical scanner or by digital photography. Analyzing and manipulating the image which includes data compression and image enhancement and spotting patterns that are not to human eyes like satellite photographs. Output is the last stage in which result can be altered image or report that is based on image analysis. The two types of methods used for Image

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