

Pulmonary Artery and Vein Classification Method using Spatial Arrangement Features from X-ray CT Image

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1. Introduction

When discriminating between benign or malignant lung tumors, the kind of pulmonary blood vessels involved in tumors is very important. This paper describes a method for the automatic recognition of pulmonary arteries and veins by using anatomical positional relationships between each bronchus and vessel.

2. Methods

We classify vessels based on the following two features. One is the distance from the bronchus region[1] to the vessel segment. The other is distance between the nearest interlobar to the vessel. The interlobar is approximately defined by a 3D extended Voronoi diagram for the bronchial branches.

3. Results

We applied the proposed method to 3 cases. The results show that the proposed method correctly classified 80~95% of vessel branches.

4. Conclusion

This paper proposed a method that automatically recognizes pulmonary arteries and veins from chest X-ray CT images by using two anatomical distribution features between the bronchus and lung vessels.

References

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