

# 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

- [1] T.Kitasaka, K.Mori, J.Hasegawa, and J.Toriwaki, "A Method for Extraction of Bronchus Regions from 3D Chest X-ray CT Images by Analyzing Structural Features of the Bronchus," *Forma*, Vol.17, pp. 321-338, 2002.

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