

VRG combined Pock medialness and Hybrid Diffusion with

Continuous Switch algorithm for lung vessel segmentation

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This algorithm is mainly consisted of these few steps:

1. Get the multi-scale responses result by using the Pock medialness through the original image;
2. Get the enhancement results by using 3-D anisotropic hybrid diffusion with continuous switch through original image;
3. Obtain the airway region by using two-pass region growing;
4. Get the segmentation mask by subtracting airway region from lung mask.
5. Constructing the region descriptor of VRG by using Pock medialness result and enhancement result, then segmentation is done through VRG which started from the local maximum of Pock medialness and constrained in the segmentation mask;

The proposed algorithm is automatic with no training data. All the testing data were run on a 3.20 GHz Intel quad CPU system with 8GB RAM. The runtime of the proposed method is not more than 40 min for each test scans.