



VIRTUAL BRONCHOSCOPY

Design and Implementation of Three Dimensional(3D) Path Planning for Virtual Bronchoscopy



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Definitions & Motivations:

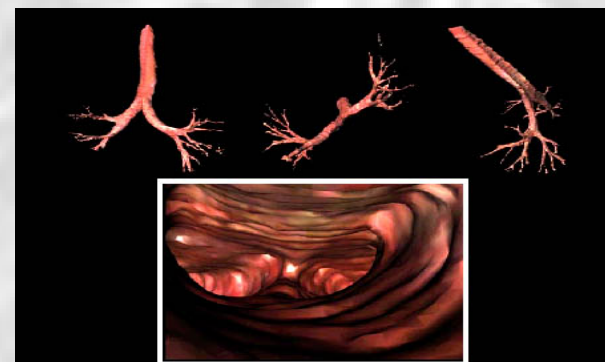
Virtual Bronchoscopy is a computer-based approach for navigating virtually through airways captured in a 3-D MDCT image.

VB 3-D image analysis:

- ✓ Guidance of bronchoscopy
- ✓ Human lung-cancer assessment
- ✓ Planning and guiding bronchoscopic biopsies
- ✓ Quantitative airway analysis –noninvasively-
- ✓ Smooth virtual navigation

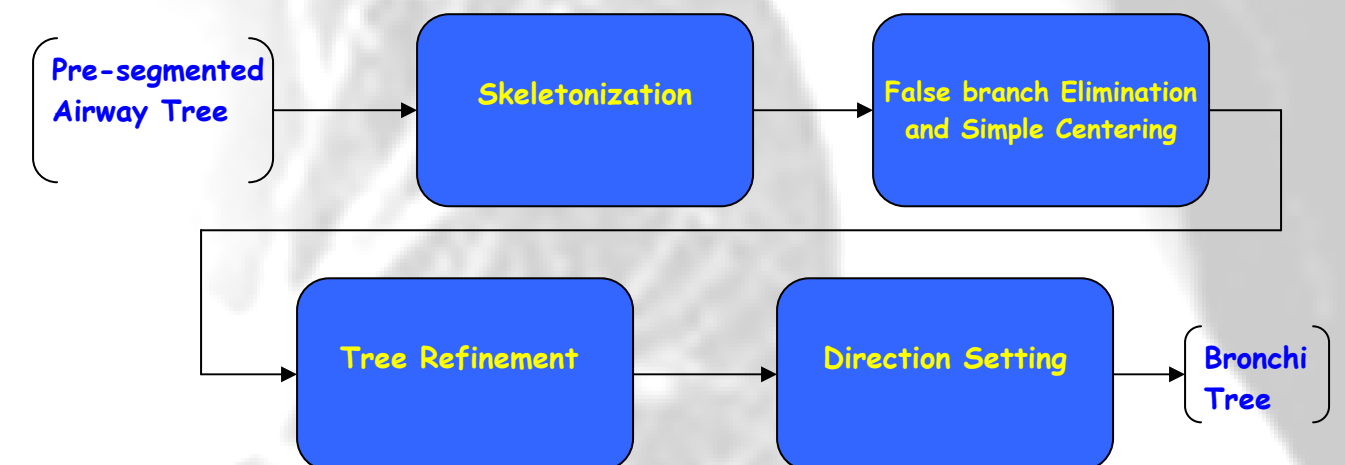
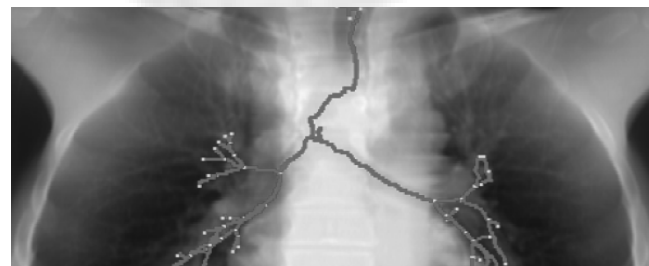


A major component of path planning system for VB is a method for computing the central airway paths (centerlines) from a 3-D MDCT chest image,



The method:

- ✓ Define the skeleton of a given segmented 3-d chest image
- ✓ Perform a multistage refinement of the skeleton to arrive at a final tree structure



Quicksee-Basic operation:

1. Load Data
 - ✓ 3D radiologic image
2. Do Automatic Analysis
 - ✓ Compute
 - ✓ Paths (axes) through airways
 - ✓ Extract regions (airways)
 - ✓ Save results for interactive navigation
3. Perform Interactive navigation/assessment
 - ✓ View, Edit, create paths through 3D image
 - ✓ View structure; get quantitative data
 - ✓ Many visual aids and viewers available

