Systems and Methods for Image Segmentation in N-Dimensional Space

This technology is a method of determining optimal surfaces in 3-D, 4-D of higher-dimensional graphs. Simultaneously detects multiple interacting surfaces in optimal fashion, surfaces that change topology, and incorporates a priori shape knowledge in optimal surface detection process.

Problem

There is an inability for a human image reader to reproducibly and accurately segment volumetric 3D images of: lungs, liver, heart tumors, and other organs.

Solution

This invention overcomes the inability of reproducing and accurately segment volumetric 3D images of organs. Additionally, our invention can segment organs through dynamic 4D image data. The use of volumetric 3D and higher-D contextual information that is generated with our technology, ultimately guarantees optimality in analyzing quantitative parameters of individual objects and their interactions. The intended filed of application is quantitative image analysis from volumetric pulmonary images (CT, MR, etc.)

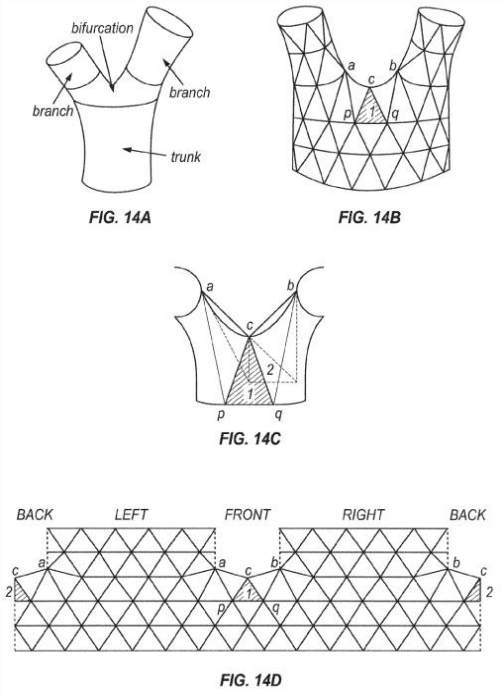

Figure 14: Pre-segmentation and generating of a triangulated mesh with present technology

Competitive Advantages

- Overcome limitations of segmentation and characterization of volumetric data
- Provides extensive data that allows accurate segment volumetric 3D & higher- D context

Status of Development

- Seeking implementation and research advancement partners

IP Status

- US Patent # US7995810B2
- Licensing Available

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