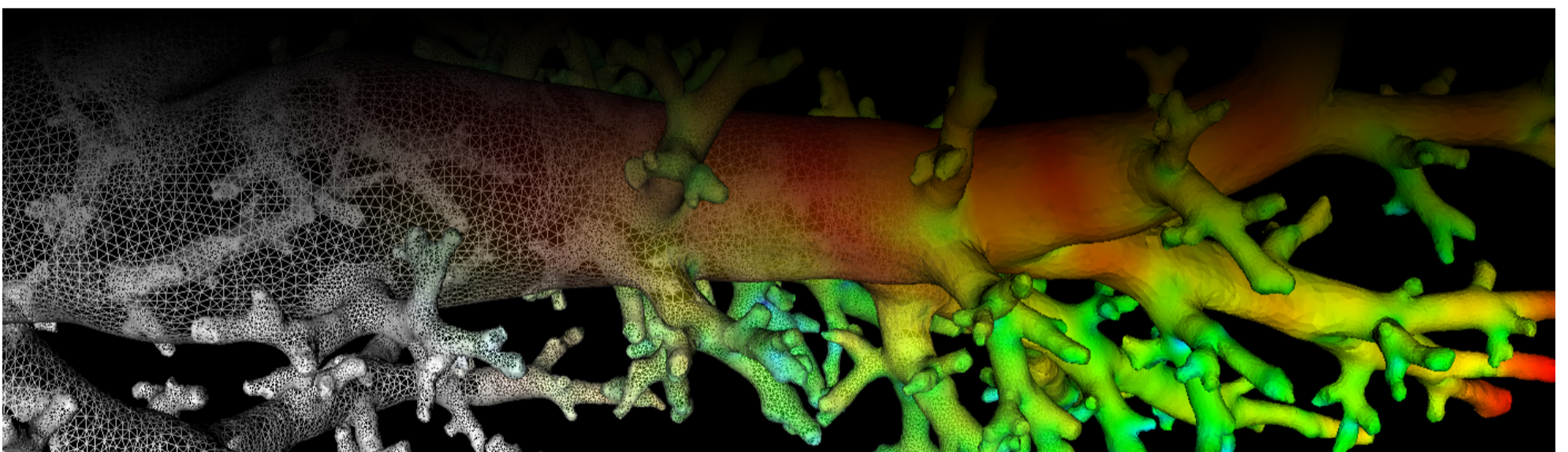


Lung Anatomy + Particle Deposition (lapd) Mouse Archive for Modeling and Computational Toxicology



Airway Tree Segment Label Correspondence

The airway tree segmentation is split into airway segments between bifurcations. Like the airway tree itself, these segments are represented in different data structures: labelmap [*_AirwaySegments.nrrd](#), mesh [*_AirwaySegments.vtk](#), structural representation [*_AirwayTreeMeta.vtk](#), tabular representation [*_AirwayTreeTable.csv](#), and in the aerosol deposition measurement table [*_AirwaySegmentsDeposition.csv](#). All these data structures share the same label/segment ID to refer to the same segment as illustrated in [Fig. 1](#).

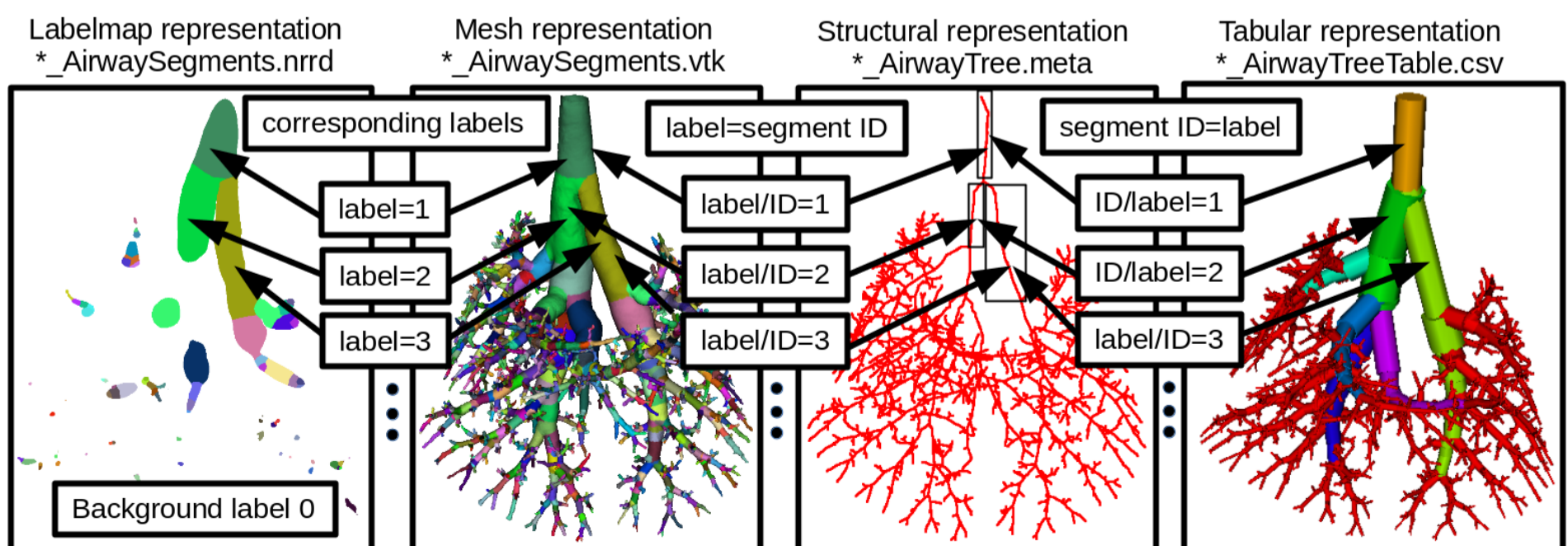


Fig. 1: Airway tree label correspondence between data structures.

Code Example

This example shows how to identify a set of airway segments in [* AirwayTreeMeta.vtk](#) and find the corresponding segments in [* AirwaySegments.vtk](#) using C++ and ITK.

[labelTreePathAndChildren.cpp](#) hosted with ❤ by GitHub

[view raw](#)

```
/*
Example showing (a) how to identify and label airway segments in a tree
structure and (b) how to link information between the AirwaySegmentsMesh.vtk and
the AirwayTree.meta.

```bash
./labelTreePathAndChildren m01_AirwaySegments.vtk m01_AirwayTree.meta 673
```

This example reads an AirwaySegmentsMesh.vtk mesh file and an AirwayTree.meta
tree structure. Based on a user specified segmentId, the program identified (a)
the set of all airway segments from the root the specified segment and (b) all
of it's child segments. Then, it assigns appropriate label values to all
associated mesh vertex point in the input mesh. The resulting labeled mesh
is output to highlightedSegmentsMesh.vtk.
*/

#include <itkMesh.h>
#include <itkMeshFileReader.h>
#include <itkMeshFileWriter.h>
#include <itkSpatialObject.h>
#include <itkSpatialObjectReader.h>
#include <set>
```

Related Data Structures

[* AirwaySegments.nrrd](#) | [* AirwaySegments.vtk](#) | [* AirwayTreeMeta.vtk](#) | [* AirwayTreeTable.csv](#) | [* AirwaySegmentsDeposition.csv](#)

Related Code Examples

[labelTreePathAndChildren.cpp](#) | [mapOutlet2AirwaySegment.cpp](#)

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