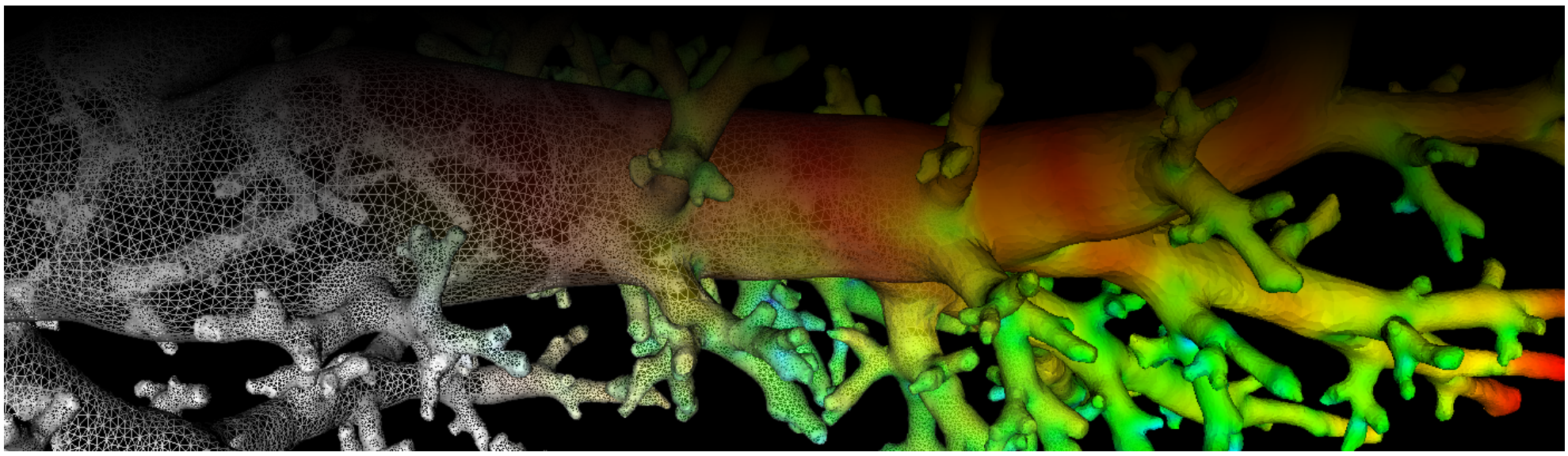
Lung Anatomy + Particle Deposition (lapd) Mouse Archive

for Modeling and Computational Toxicology



Text file *_Info.md

Notes about mouse physiological parameters, aerosol dosing, data acquisition and processing, and other findings.

***_Info.md** provide general information about the dataset, stored in a structured text file that follows a predefined template. The template is divided into sections containing the following information:

- **Mouse Physiologic Parameters:** This section gives sex, strain, weight, vendor, any abnormalities noted during dosing.
- **Aerosol Dosing:** Gives the microsphere particle diameter, the total exposure time, and an estimate of the number of particles inhaled by the mouse. The table in this section gives respiratory parameters (respiratory rate, tidal volume, minute ventilation, and I:E ratio) prior to any exposure, and immediately after the two nebulizer runs, based on the ventilation measurements in *_Ventilation*.csv.
- **Slicing Info:** Outlines the exposure settings relevant to slicing and the order in which images were taken, which is generally white field, calibration layer, slicing, and dark images. We also include several sentences giving an overall impression of the slicing and noting problems that may have occurred. More information about the slicing protocol can be found in *_RawCryomicrotomeData.
- **Airway Segmentation:** Summary statistics about the segmented airway tree (*_AirwayOutlets.vtk and *_AirwayTreeMeta.csv) obtained with our segmentation method, including total centerline length number of airway branches, number of terminal branches, and number of outlet areas.
- **Compartment Sizes and Aerosol Deposition:** Lists summary statistics for lung lobes *_Lobes.nrrd, sublobes *_Sublobes.nrrd and near acini structures *_NearAcini.nrrd. Their corresponding volume and aersol deposition measurements are stored in *_LobesDeposition.csv, *_SublobesDeposition.csv, and *_NearAciniDeposition.csv, respectively.
- **Additional Notes:** Mentions special findings about the image data and processing results, including an overall quality measure and identified artifacts.

Below is an example of an ***_Info.md** file:

m01_Info.md view raw

```
# m01

[Go to data folder]([redacted])

![Screenshot showing aerosol deposition]([redacted])

## Mouse Physiologic Parameters

  * Sex: Male
  * Strain: B6C3F1
  * Weight (g): unknown
  * Vendor: Charles Rivers
  * Physical abnormalities: none
  * Protocol ([redacted])

## Aerosol Dosing

  * Particle size: 1 micron
  * Exposure time: 10 minutes
  * Exposure estimate: 1.09E+08 FMS

 | Time              | RR (bpm) | Vt (ml) | VE (ml/min) | I:E   |
 |:------------------|---------:|--------:|------------:|:-----:|
```

Code Example

The following example demonstrates how to extract information from the datasets *_Info.md, and summarize information from several datasets in the lapdMouse data archive.

DatabaseInfoTable.ipynb hosted with ♥ by GitHub view raw

Related Data Structures

_Ventilation.csv | *_RawCryomicrotomeData | *_AirwayTreeMeta.csv | *_AirwayOutlets.vtk | *_AerosolDeconv.mha | *_Lobes.nrrd | *_LobesDeposition.csv | *_Sublobes.nrrd | *_SublobesDeposition.csv | *_NearAcini.nrrd | *_NearAciniDeposition.csv

Related Code Examples

DatabaseInfoTable.ipynb

Updated: 7/24/19
2018 r2b