Lung Anatomy + Particle Deposition (lapd) Mouse Archive

for Modeling and Computational Toxicology

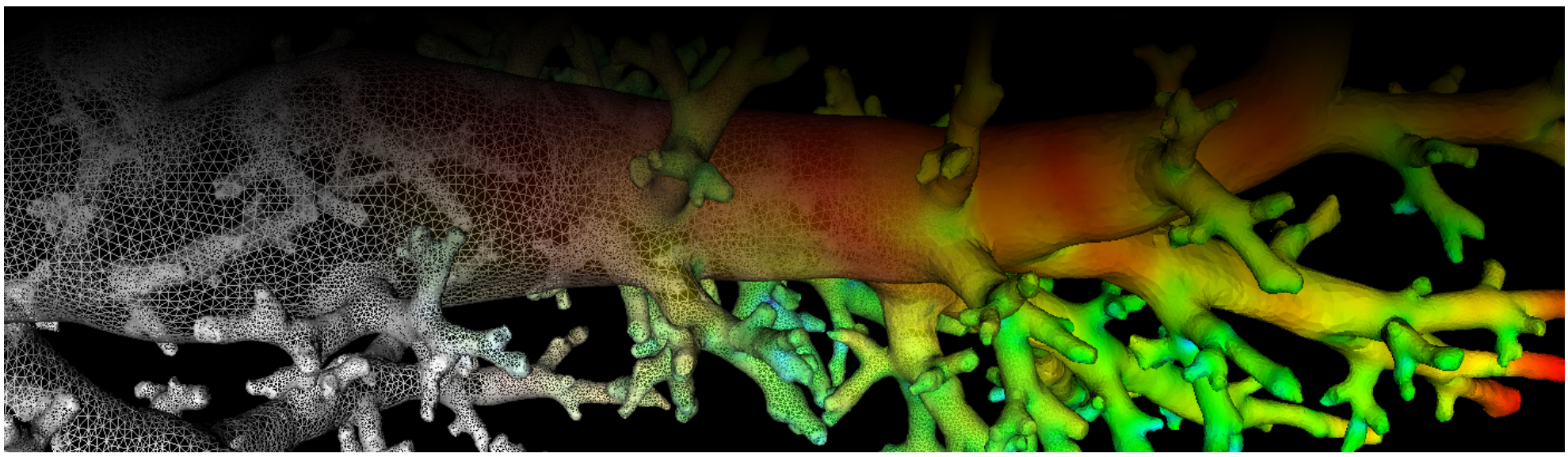
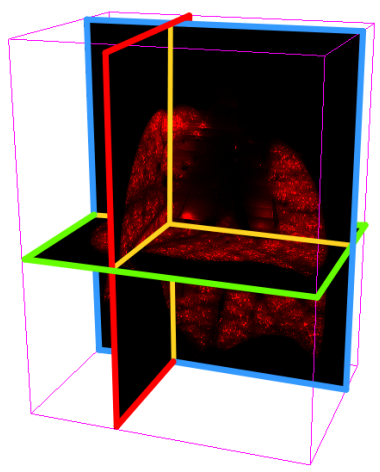


Image volume *_AerosolDeconv*.mha



Aerosol deposition image volume after deconvolution.

Color channel of the imaging cryomicrotome showing aerosol deposition after deconvolution. (Fig. 1). The full resolution image ***_AerosolDeconv.mha** as well as versions downsampled by by factor 2 and 4 in each dimension are stored in files ***_AerosolDeconvSub2.mha** and ***_AerosolDeconvSub4.mha**, respectively.

The aerosol deposition measurement volumes *_Aerosol*.mha show a slight directional blur. To decrease this effect and increase the resolution deposition measurements, we apply deconvolution resulting in ***_AerosolDeconv*.mha**.

This dataset further processed and the voxel values normalized to allow better comparison of aerosol deposition between mice resulting in *_AerosolNormalized*.mha.

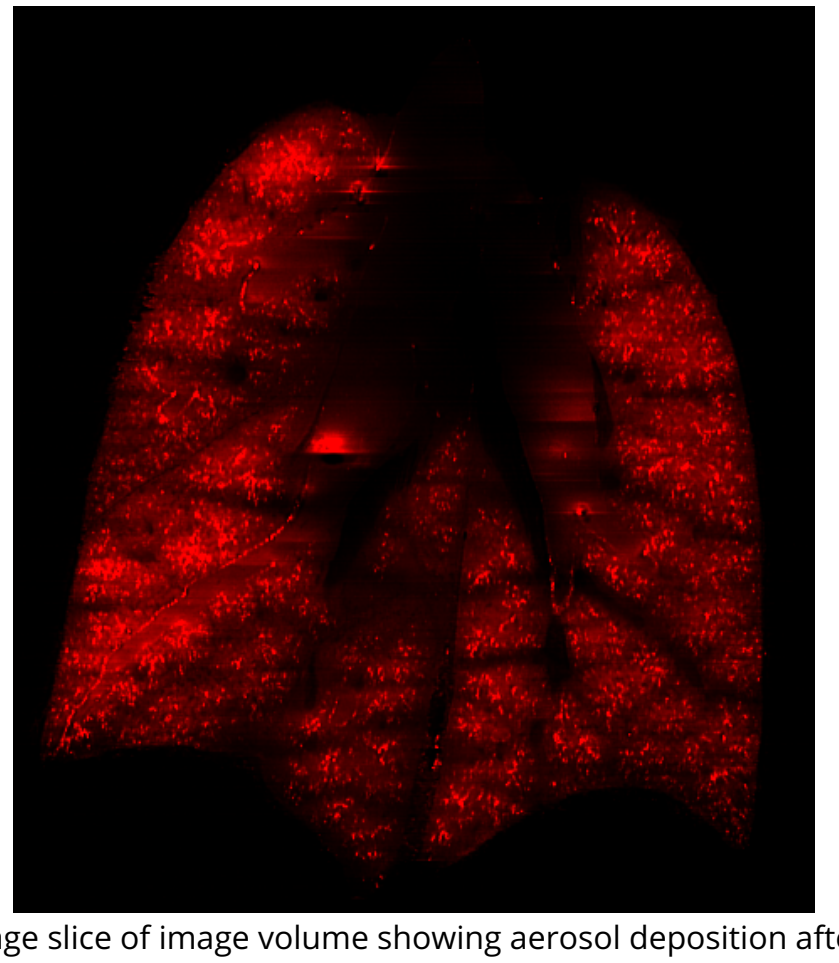


Fig. 1: Coronal image slice of image volume showing aerosol deposition after deconvolution.

The size and resolution of the resulting image volumes ***_AerosolDeconv.mha** vary slighly from mouse to mouse, but the full resolution images have a resolution in the range of 9x9x9µm and size in the range of 2000x2000x2500 voxels, resulting in an image volume >20GB per mouse when stored with 32 bit precision per voxel. The size and spacing is identical to their corresponding image volumes *_Aerosol*.mha, *_AerosolNormalized*.mha and *_Autofluorescent*.mha.

Code Example

This examples shows how to read and write a volumetric image such as ***_AerosolDeconv*.mha** using C++ and ITK.

readWriteImage.cpp hosted with ♥ by GitHub view raw

```
/*
Example how to read and write intensity images used in lapdMouse project using ITK.

```bash
./readWriteImage m01_AerosolSub2.mha out.mha
```
*/

// ITK includes
#include <itkImage.h>
#include <itkImageFileReader.h>
#include <itkImageFileWriter.h>

int main(int argc, char**argv)
{
  if (argc!=3)
  {
   std ::cerr << "Usage: " << argv[0] << " input output" << std::endl;
    return -1;
  }

  // typedef for volumetric images used in lapdMouse project
 typedef itk ::Image< float, 3 > ImageType;
```

Related Data Structures

*_RawCryomicotomeData | *_Aerosol*.mha | *_AerosolNormalized*.mha *_Autofluorescent*.mha

Related Code Examples

readWriteImage.cpp | imageLabelStatistics.cpp

Updated: 7/24/19
2018 r2b