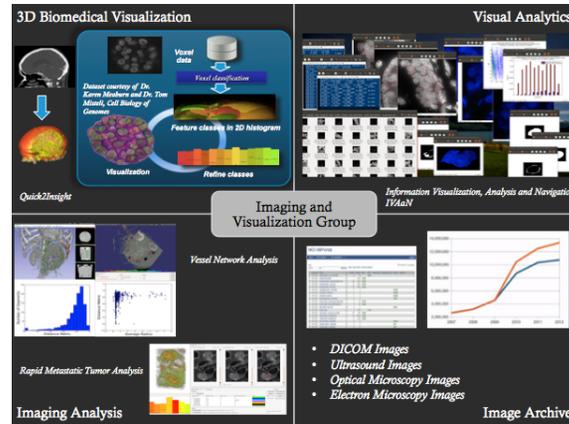


The Team

- ◆ Works with NCI/FNLRC imaging facilities and investigators
- ◆ Gathers user requirement from domain experts in imaging facilities
- ◆ Collaborates with external imaging communities
- ◆ Adopts new technologies in image analysis and visualization
- ◆ Performs technology development
- ◆ Builds workflows to increase image analysis throughput
- ◆ Develop and maintain computing infrastructure for image analysis – including common software tool sets, thin clients, and servers



Imaging and Visualization Group

Advanced Biomedical Computing Center

Information Systems Program

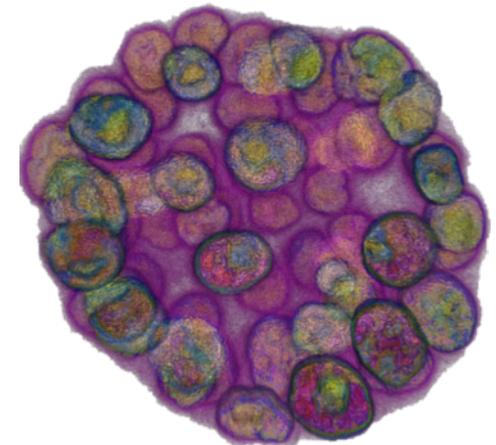
Frederick National Laboratory
for Cancer Research

yanling.liu@fnlcr.nih.gov
301-846-7366

<http://ncifrederick.cancer.gov/isp/abcc>

ABCC Imaging and Visualization Group ISP, FNLRC

- 3D Biomedical Visualization
- Quantitative Image Analysis
- Information Visualization
- Image Archive
- Nano-Structural Support



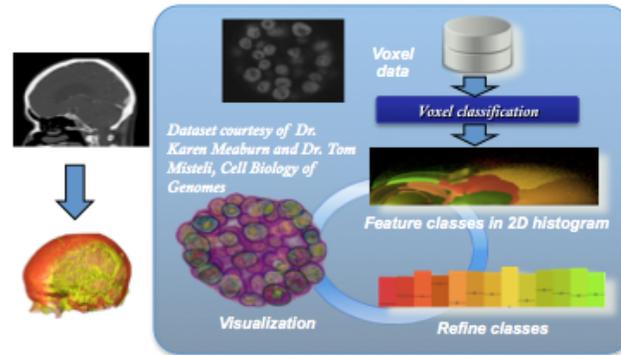
IVG

3D Biomedical Visualization

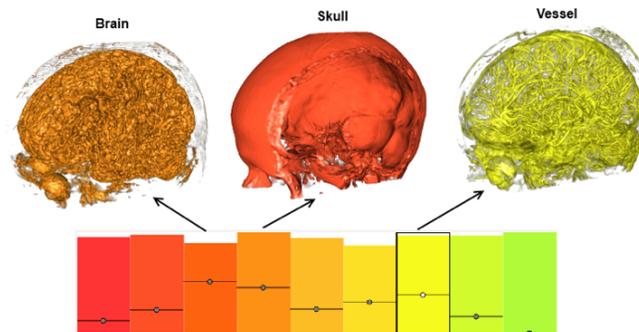
- ◆ Quick2Insight
- ◆ 3D Volume Rendering using GPU Ray-casting
- ◆ 3D Volume Rendering on medical image volumes
- ◆ 3D Volume Rendering on microscopy image stacks
- ◆ 3D Volume Rendering on whole slide scan image stacks
- ◆ Contributed GPU rendering module in 3D Slicer software

Quick2Insight

- ◆ A framework to visualize details in volumetric datasets quickly
- ◆ Reduce time spent on tweaking rendering parameters (transfer functions)
- ◆ Automate visualization tasks for domain experts such as biologists and medical doctors
- ◆ Published in BioVis 2011
- ◆ SAIC (Leidos) STFC Publication Award Winner 2012



Quick2Insight algorithm flow



Use Quick2Insight to separate anatomical structures

GPU Volume Rendering Module in 3D Slicer

IVG had contributed a new GPU Ray-casting Volume Rendering module in 3D Slicer

- ◆ 3D Slicer is a free, open source software package for visualization and image analysis. It is a popular community platform created for subject specific image analysis and visualization
- ◆ IVG developed the first GPU-accelerated ray casting volume rendering module in 3D Slicer

Rendering: NCI GPU Ray Casting

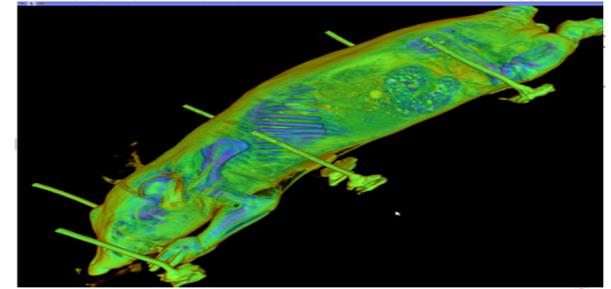
Advanced...

Techniques

Volume Properties

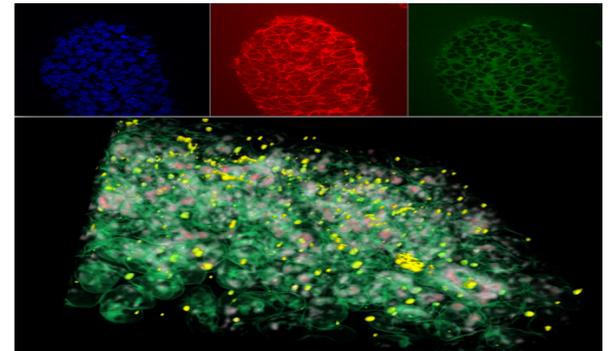
ROI

Misc

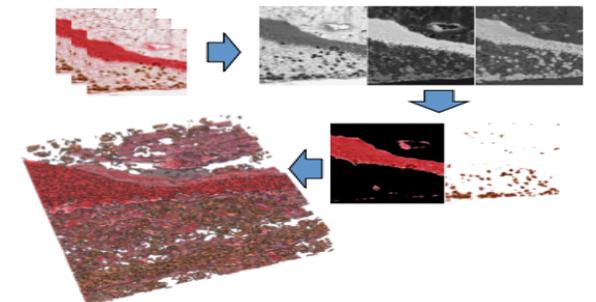


3D Visualization using the IVG contributed GPU Ray Casting module in 3D Slicer

3D Visualization on Microscopy Images



3D Visualization of multichannel confocal image stack



3D Visualization of Whole Slide Scan image stack