Sneak Preview of Next Generation SCIRun Features and Directions
Overview

Core Encapsulation
• SCIRun is more than dataflow…

Regression Testing System
• CMAKE, CTEST, DART, …

Segmentation App (“widget”)
• From raw images to label maps

Mesh Generation App (“widget”)
• From voxels to meshes

Goals: Stability, Modularity, Efficiency, Apps
GUI Separation

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State and Event Management

- Detachable interface
- Reproducibility
- Collaboration
- Remote vis
- Custom UI
- Scripting
- Regression testing

GUI

State Manager

BioPSE

SCI INSTITUTE

CIBC
Core Encapsulation

Goals: Stability, Modularity, Efficiency, Apps

Taking “GUI Separation” Even Further

Algorithm Layer
- Move “guts” of Modules into Algorithms (from Dataflow directory to Core directory)

PowerApps Built Without Dataflow
Applications Built Directly From Algorithms
Dataflow Runs Without a GUI
State and Event Manager
Release Core As Its Own “Product”
Regression Testing System

Goals: Stability, Modularity, Efficiency, Apps

CMAKE, CTEST, DART
- Continuous, nightly, and experimental builds for various BioPSE projects (and Teem)

Hardware Farm
- Dedicated resources (also used for demos)
- Nightly resources (developers’ machines)
- Outside resources

Developing a Suite of Tests
- Command-line executables
- Logging and replay for end-user applications

Mini Releases
**Segmentation App**

Goals: Stability, Modularity, Efficiency, Apps

From Imaging Data to Segmentations

Photoshop Style Interface

- Operations produce layers
  - ITK filters
  - Manual editing
- Binary operations
- Composited rendering

Slice-Based 2D Vis

Volume Rendering-Based 3D Vis
Meshing App

Goals: Stability, Modularity, Efficiency, Apps

From Segmented Voxels to Unstructured Meshes
  • Volumes and Surfaces

Preserve Labels

Preserve Geometric Features
  • Conform to boundaries
  • Heterogeneous
  • Anisotropic

Bridge to Other Meshing Tools
  • TetGen
  • afront