Major Software Projects This Year
Overview

Software Enhancements Driven by Collaborations

Goals

• Stability
• Modularity
• Efficiency
• Tools needed across projects (“pipelines”)

SW Projects
Overview

Goals: Stability, Modularity, Efficiency, Pipelines

Core Encapsulation
• SCIRun is more than dataflow…

Regression Testing System
• CMAKE, CTEST, DART, …

Segmentation Pipeline
• From raw images to label maps

Mesh Generation Pipeline
• From voxels to meshes
Core Encapsulation

Goals: Stability, Modularity, Efficiency, Pipelines

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”

SCI INSTITUTE

CIBC
Regression Testing System

Goals: Stability, Modularity, Efficiency, Pipelines

CMAKEx, 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 Pipeline

Goals: Stability, Modularity, Efficiency, Pipelines

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 Pipeline

Goals: Stability, Modularity, Efficiency, Pipelines

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