Roles of Corview at CARMA

Evaluation → Treatment → Followup
Roles of Corview at CARMA

Evaluation → Treatment → Followup

Fibrosis Maps

Utah I, Utah II, Utah III, Utah IV

Tuesday, April 10, 2012
Roles of Corview at CARMA

Evaluation → Treatment → Followup

Fibrosis Maps

DECAAF Multi-Center Clinical Trial

Tuesday, April 10, 2012
Roles of Corview at CARMA

Evaluation → Treatment → Followup

Scar Map

Tuesday, April 10, 2012
Roles of Corview at CARMA
Roles of Corview at CARMA

Evaluation → Treatment → Followup

Basic Research
Roles of Corview at CARMA

Evaluation → Treatment → Followup → Basic Research

Tuesday, April 10, 2012
Roles of Corview at CARMA

Evaluation → Treatment → Followup

Basic Research

Utah Multidisciplinary Arrhythmia Project
Corview Construction

User Interface (Qt)

Segmentation

Numerical Code

Graphics

Segmentation
Corview Construction

User Interface (Qt)
Corview Construction

User Interface (Qt)

Segmentation

Numerical

Graphics

Tuesday, April 10, 2012
Clinical & Research Workflows

Tuesday, April 10, 2012
Segmentation Workflow
Corview Features

Measurement Tools

- M0: 24.586
- M1: 8.058
- M2: 23.536

Units: Actual

Opacity: 1.00

Copy Selection To Clipboard

Copy All To Clipboard
Corview Features

Local Inhomogeneity Correction
Corview Features

Image Filters

- Canny Edge Detection
- Confidence Connected
- Curvature AnisoDiff. Filter
- Distance Map
- Gradient AnisoDiff. Filter
- Gradient Magnitude
- Histogram Equalization
- Inhomogeneity Correction
- Intensity Correction
- Segmentation Level Set
- ShrinkWrap
- Staple

Select a data layer to activate this filter.
Corview Features

Image Registration

Select two layers to activate registration

Initialization: None
Registration: PipelineAffine
Metric: Mattes Mutual Information
Interpolation: Linear

Run registration step to activate transformation

Parameters

Interpolation: Linear

Transform
Quantification Workflow

UI (Qt)  VTK  C++/ITK
Corview Features

- UI (Qt)
- VTK

Landmarks
Corview Features

Region Analysis

UI (Qt)

VTK
Evaluation Challenges
Hard Problem

- No Normalization
- Noise
- Poor Contrast
Hard Problem

Anatomy Varies

Hard Problem

Experts Vary


Tuesday, April 10, 2012
Automation Challenge


- GA Tech: Segmentation of the Endocardial Wall of the Left Atrium using Local Region-Based Active Contours and Statistical Shape Learning, Gholami, et al., 2010
Automation Challenge

• KCL: Left atrium segmentation for atrial fibrillation ablation, Karim, et al., Proc. SPIE Medical Imaging, 2008
• GATECH: Segmentation of the Endocardial Wall of the Left Atrium using Local Region-Based Active Contours and Statistical Shape Learning, Gholami, et al., 2010

fail here
CALL FOR PARTICIPATION

ISBI 2012 Challenge Workshop

Cardiac Delayed Enhancement Magnetic Resonance Image Segmentation
cDEMRIS