Computer-Assisted Visualization and Analysis for Multimodality Medical Images Using FusionViewer

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Introduction

- Combining PET and CT images enables accurate and sensitive cancer information with respect to detailed patient anatomy
- FusionViewer is designed to display fused PET/CT images
  - Facilitating and improving PET/CT interpretation and visualization
  - Providing a robust and fast base platform to foster an active open source community

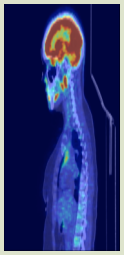
Project Status

Release History
- FusionViewer 1.0 Beta (December, 2007)
- FusionViewer 1.0 Alpha (March 2007)

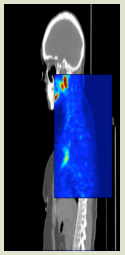
Environment
- Windows XP, Mac OS 10.3.9 or later
- Java Runtime Environment(JRE) 10.4 or later

Key Features
- 2D and 3D image data
- Various viewing options
- Fast navigation through 3D view
- Locked cursor position
- Color maps and window/level setting
- Analysis tools
- DICOM format support

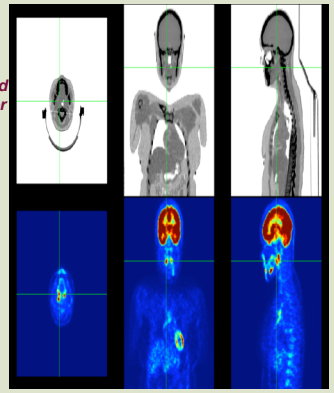
Visualization


Alpha blend


Checkerboard


Split window

Linked cursor mode



Fusion mode

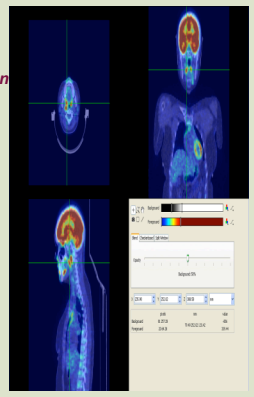
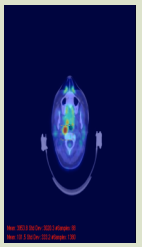
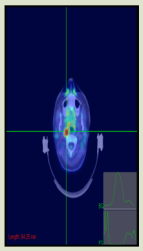


Image Analysis

Regions of Interest (ROIs)


ROI statistics

Line Measurement

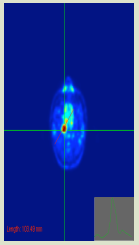

Length and line profile in fusion mode

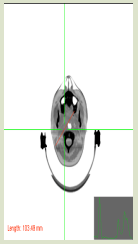
Control Panel

Tool bar
- Navigator
- Zoom
- Pan
- Screen snapshot
- Rectangle ROI
- Line measures

Color setting
- Colormaps
- Window/Level adjustment

Pixel information
- Pixel value
- Coordinate values




Line measurement in linked cursor mode

Future Work

- GUI improvement: resizing; ellipse ROI
- Link to image registration application
- OS support: Linux, BSD, Sun …

Your Contributions Are Encouraged
http://fusionviewer.sourceforge.net

Conclusions

- Open source application
- Multiple platforms (OS X, Windows XP/Vista, …)
- Uses Insight Toolkit (www.itk.org)
- Customized for PET/CT. Extendible to other modalities
- Scanner manufacturer independent

Acknowledgements

- NIH Grant R44 CA099329 and R01 CA115870
- Insight Segmentation and Registration Toolkit (ITK)