

A photograph showing three medical professionals, likely radiologists or researchers, in a clinical or research setting. They are wearing blue scrubs and are focused on a large computer monitor. The monitor displays a complex medical imaging software interface with various panels, including a large circular image of a patient's scan. The background is a bright, clean environment, possibly a hospital or research lab. The overall tone is professional and collaborative.

From images to **insights**

Fundamentals

Fundamentals



Input formats	Output formats
	DICOM
	DICOM RT
	Research formats (Nifti, Analyze)
	DICOM secondary capture
Non-DICOM compliant data	DICOM secondary capture
Proprietary formats	CSV (for statistics, graphs)
	Text file (for graphs)
	Images (JPEG, BMP, PNG) for graphs, image snapshots
	Movies (AVI) for image viewers

Imalytics is a powerful workstation for the validation of new procedures in clinical research.

It consists of a flexible modular system, composed of a main platform and several specialized optional applications. Its main platform offers a user environment, which is rich in standard and advanced tools for data and workflow management, image registration, segmentation, processing, visualization as well as quantitative measurements.

Guided Flow through your workflow

Guided Flow is our tool for the comprehensive set of productivity features built into the applications and the data management. The top-level workflow bar guides you through the most important tasks. You can navigate between key functionalities keeping the focus on your current work.

Therefore, Imalytics allows you maximum flexibility for viewing and performing research operations and even to integrate your own algorithms written in C++.

Additionally you can even automate your specific workflows by running scripts, which can be easily customized for any research task.

Flexible data management

The data management is very intuitive. You can store your data both in a subjects database, which can communicate with other DICOM network nodes, and in file repositories on the local workstation or your IT infrastructure. The project-centric workflow allows you to organize your image data by research projects across all data sources.

In order to offer you total flexibility in the management of your imaging and non-imaging data, Imalytics can deal not only with standard formats but also with many proprietary and non-conventional ones. Moreover, with Imalytics you can export any of your research results in the format of your convenience.

Multimodal image registration tools

Imalytics allows you to flexibly choose between several image registration approaches, ensuring to provide the solution that best fits your requirements. You can perform manual alignment, you can use landmarks to perform the registration or you can apply automatic registration algorithms. For automatic registration, Imalytics relies on *elastix*, the ultimate tool for multimodal image registration tasks. *elastix* supports the following registration methods:

- translation
- rigid
- affine
- non-rigid

To learn more about *elastix*, please refer to: S. Klein, M. Staring, K. Murphy, M.A. Viergever, J.P.W. Pluim, “*elastix: a toolbox for intensity based medical image registration*”, *IEEE Transactions on Medical Imaging*, vol. 29, no. 1, pp. 196 - 205, January 2010 or visit their website <http://elastix.isi.uu.nl/>

Advanced image segmentation tools

Imalytics provides a whole range of manual, semi-automatic and automatic segmentation tools to optimally meet your requirements:

- manual contour drawing with linearly or Bezier interpolated curves
- thresholding
- region growing
- clustering
- hole filling
- island removal
- splitting
- PET tumor segmentation
- directional morphological operators
- logical operators (AND, OR, WITHOUT)
- computation of volume statistics for segmented objects

Additionally, Imalytics allows you to integrate your own segmentation algorithms and combine them flexibly with those on the system.

Time-saving image processing tools

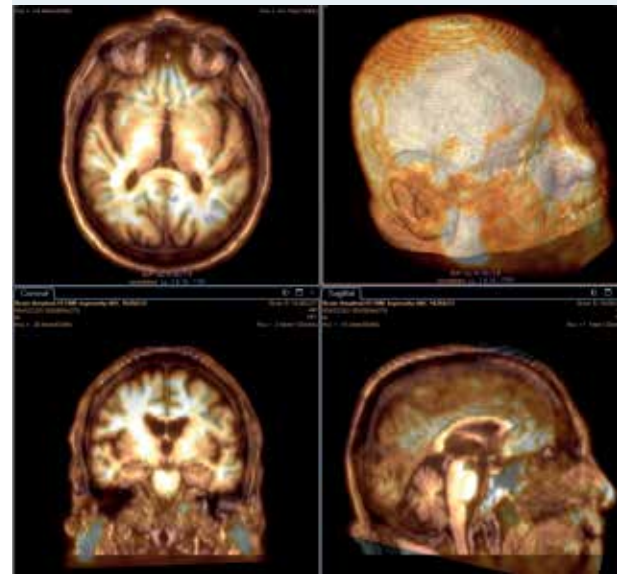
You can use rich portfolio of image processing tools, which can be used on Imalytics in a flexible way, so you can freely combine algorithms to build up your own workflow. Available algorithms include:

- cropping, flipping, extraction of volumes
- mathematical operations on multiple images
- filtering: smoothing, sharpening, edge detection, gradients, noise suppression, resampling, ...
- signal-to-noise ratio
- phase extraction from dynamic data
- MR bias field correction
- transform propagation
- concatenation of static images to dynamic series
- computation of dynamic features
- C++ interface for addition of your own Algorithms

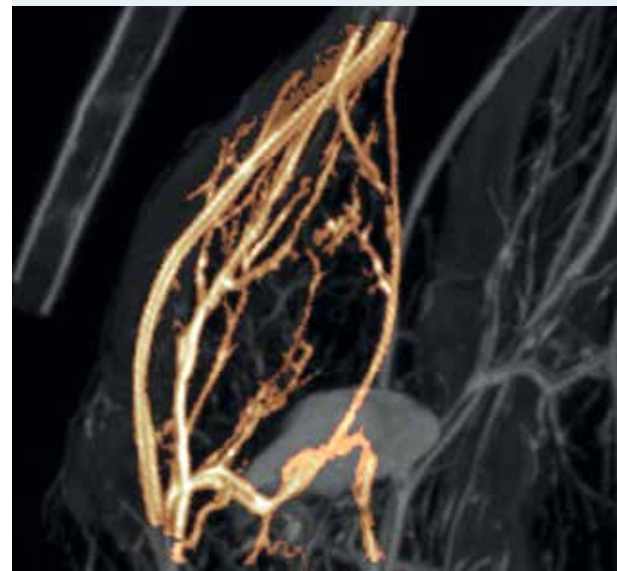
Advanced visualization tools

Imalytics offers powerful options to visualize your image data:

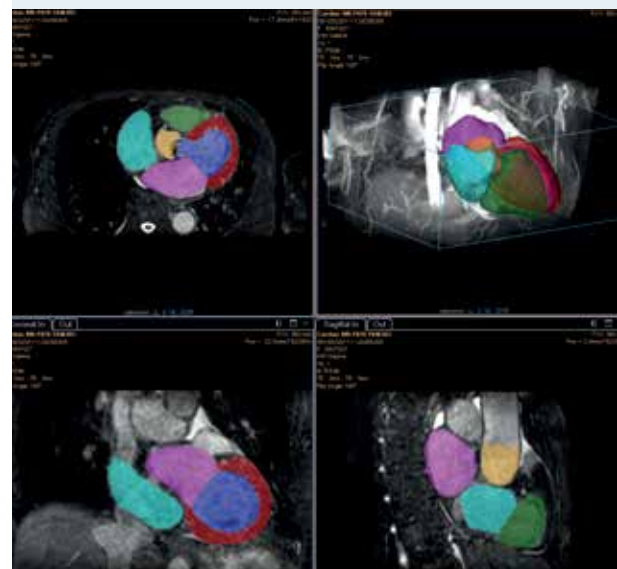
- image data display in orthogonal planes
- comprehensive environment for fused multimodality visualization in 2D and 3D
- configurable presentation states
- quantitative measurement tools
- multiple quantification units for all supported modalities



Registration of a T1 MRI scan and Amyloid PET scan



3D Vessel segmentation on a contrast-enhanced preclinical CT scan



Cropping algorithm applied on a cardiac MRI scan in the framework of the image processing tool-set



CAUTION: For research use only.
Not intended for diagnostics or patient therapy planning.

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Printed in Germany · AUG 2014