

# Analyze

*Visualization and Analysis Software*

Volume Rendering

Segmentation

Image Fusion

Region Measurement

**Analyze** is used by thousands of physicians and scientists at the world's top medical centers, universities, biotech, pharmaceutical, medical device and clinical research companies.

## Modules

### Display

- Multiplanar Sections
- Oblique Sections
- Volume Rendering
- Virtual Endoscopy

### Image Processing

- Image Calculator
- Image Algebra
- Histogram Operations
- Spatial Filters

### Segmentation

- Image Edit
- Volume Edit
- Object Extractor
- Surface Extractor

### Image Fusion

- 2D Registration
- 3D Surface Registration
- 3D Voxel Registration

### Measurement

- Line Profile
- Region of Interest
- Stereology
- Tree Analysis

+ many more

## The Researcher's Choice for Advanced Visualization and Analysis

Analyze is a powerful, comprehensive visualization and analysis suite for multi-dimensional display, processing, segmentation, registration, and measurement of biomedical images from most imaging modalities including MRI, CT, PET and SPECT.

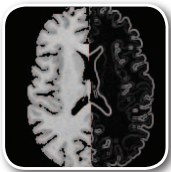
Thousands of researchers worldwide use Analyze to quickly and routinely perform critical medical image visualization and analysis tasks such as volume rendering, virtual endoscopy, segmentation, image fusion, surface modeling and region of interest measurement.



### Display

Analyze provides a diverse and powerful array of tools for data review and display including:

- Multi-dimensional image review
- Interactive orthogonal and oblique reslicing
- Multi-modality image evaluation
- Advanced image visualization and volume rendering
- Interactive virtual data exploration and movie generation
- Surface map generation and rendering

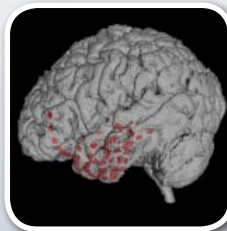


### Image Processing

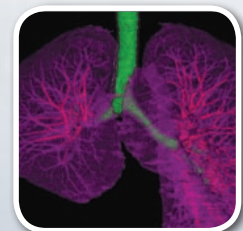
To facilitate image optimization Analyze includes post-processing functions such as:

- Geometric operations (crop, resize, scale, rotate, pad, flip)
- Mathematical processing
- Histogram manipulation
- Image filtering and enhancement
- Custom image filter creation
- FFT, convolution, deconvolution correction

## Applications



- Electrode Grid Visualization
- Hippocampal Volume Assessment
- Quantitative Morphometry



- MS Lesion Detection
- Stroke Examination
- Tumor Quantification

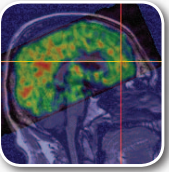




## Segmentation

Sophisticated segmentation tools are included in Analyze for fast and precise region definition. Tools include:

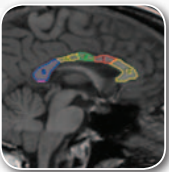
- Interactive image partitioning
- Interactive volume segmentation
- Morphological segmentation (erode, dilate, open, close)
- Skull stripping
- 2D and 3D data classification
- Automatic object segmentation
- Surface mesh creation



## Image Fusion

For registration of 2D, 3D and 4D data, as well as multi-modality image fusion, Analyze includes:

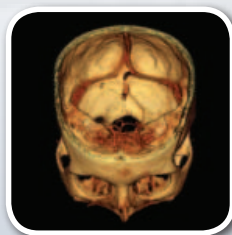
- Image alignment
- Image morphing
- Spatial registration of point data to image surface
- Surface matching
- Automatic voxel registration
- Nonlinear registration



## Measurement

Analyze allows for in-depth analysis of multi-dimensional regions of interest by providing operations for:

- Line intensity and distance measurements
- Region and volume definition and statistical analysis
- Point counting volume estimation
- Cell counting and statistical analysis
- Vessel network generation and statistical examination



- Adipose Tissue Quantification
- Gastric Volume Assessment
- Time-series Analysis

- Corpus Callosum Division
- Cardiac Segmentation
- IC Hemorrhage Quantification

+ many more



### Supported Data Formats

#### Analyze-Specific File Formats

AnalyzeAVW  
AnalyzeAVW Volume Files  
Analyze Image (7.5)  
Analyze Object Maps

#### Standard Radiological File Formats

DICOM ACR/NEMA  
Papyrus Interfile  
NIFTI

#### Vendor-Specific Radiological File Formats

GE Advantage  
GE Signa MR  
GE 9800 CT  
GE Advance PET  
GE Starcam  
Siemens CT  
Siemens MAGVIS  
Siemens/CTI PET  
Siemens/CTI MicroPET  
Picker MRI  
Imatron (EBCT)  
SMIS  
Bruker MRI (Paravision)  
BioRad  
Varian FDF

#### Common Raster File Formats

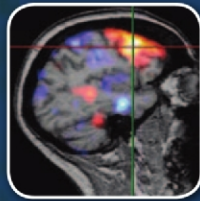
BMP GIF JPG  
TIFF PBM PGM  
PIC PostScript PNG  
PPM SGI RGB Sun Raster  
TARGA XBM XWD

#### Common Movie File Formats

AVI MPEG1  
QuickTime YUV

#### Surface Description File Formats

Alias AutoCAD  
IGES Inventor  
Ply Pogo  
SLC STL  
HPGL Patran  
Poly VRML



### SISCOM

SISCOM allows for epilepsy seizure focus localization by:

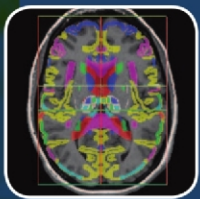
- Identifying and registering cerebral voxels in ictal/interictal SPECT
- Segmenting brain from registered SPECT data
- Normalizing and subtracting SPECT data
- Determining statistical regions of activation from subtracted SPECT data
- Registering SPECT and MRI to create a fused activation image



### Diffusion Tensor Imaging

The DTI add-on provides the ability to generate primary DTI maps and perform white matter fiber tracking and visualization. Features include:

- Diffusion weighted MRI parameter configuration
- DTI map generation
- White matter fiber track computation and visualization



### 3D Brain Atlas

The Brain Atlas add-on allows for the registration of a 3D anatomical atlas to human MR data for definition of anatomical components. Key steps are:

- Interactive AC-PC alignment to Talairach-Tournoux space
- Interactive scaling to Talairach grids for improved registration to Atlas
- Single or multi-point query of Talairach/image space
- Output of atlas-derived anatomical component maps



### Development Capabilities

The Analyze Developers add-on allows you to develop custom modules for Analyze using the AVW (A Visualization Workshop) image library of over 700 image processing functions. AVW imaging functions are:

- User interface independent
- Extensible
- Optimized for increased performance

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