Applications for advanced image visualization and analysis

- High image quality
- Comprehensive and clinically relevant analysis software
- Enterprise-wide access
- Scalable platform
- Customized application packages
OVERVIEW

Synapse® 3D provides clinical professionals with a comprehensive collection of applications for advanced image visualization and analysis. Its general tools provide day-to-day 2D, 3D, and 4D image analyses, while its comprehensive, clinically specific tools aid trained clinical users in interpreting, reporting, and providing treatment planning. Most tools can be used alone or combined seamlessly with other tools for additional advanced clinical workflows.

Note: Synapse 3D is not intended for primary diagnostic interpretation of mammography images.

Clinical Tools

PULMONOLOGY  p. 13
Lung Analysis/Airway
Lung Analysis Resection
Lung Analysis Scope

GASTROENTEROLOGY  p. 10
Colon Analysis
Endoscopic Simulator
IVIM MR
Liver Analysis CT/MR
Liver Analysis MR

UROLOGY  p. 14
Kidney Analysis
Kidney Volumetry

BASE TOOLS  p. 2
2D Fusion
2D Viewer
3D Comparison
3D Compositor
3D Viewer
3D Viewer with VE
4D Viewer
ADC Viewer
Combination
Dental MPR
Dynamic Data
Fat Analysis 2D & 3D
Fusion Viewer
General CPR
MPR Reformat
Sector MPR
Slicer
Surface Viewer
Tx Map

NEUROLOGY  p. 11
4D Perfusion CT
Brain Perfusion CT
Brain Perfusion MR
Craniotomy/Tensor Analysis
Vessel Extraction

CARDIOLOGY  p. 6
4-Chamber Analysis
Aortic Valve Analysis (TAVR)
Calcium Scoring
Cardiac Ablation Analysis
Cardiac Function CT
Cardiac Function MR
Cardiac Fusion
Cardiac Perfusion CT
Coronary Analysis CT
Coronary Analysis MR
Delayed Enhancement MR
Flow Analysis MR

ONCOLOGY  p. 12
Abdominal Perfusion CT
Breast Analysis MR
Nuclear Medicine Viewer
Oncology Viewer
Prostate Viewer MR

FUJIFILM
Value from Innovation
BASE TOOLS

2D Fusion
Fuses multimodality, multidimensional data for purposes such as breast or prostate MRI or police science applications. Viewer superimposes two 2D or 3D images of same or different modality. Main functions include:
- Fusing of 2D or 3D images
- Ability to save created fusion images as DICOM file
- Measurements of tibial tuberosity (TT) and trochlear groove (TG)

2D Viewer
Provides simple viewing of multimodality images in a single application. This software is also embedded as the simple CD/DVD viewer. Main functions include:
- Cine playback
- Synchronization of density adjustment, panning, and zooming among multiple images
- Synchronization of coordinate positions among multiple images
- Change (reconstruction) the displayed plane
- Display of the average image
- Batch capture of images in a series
- Display of the following DICOM-compliant SOP classes:
  - CR Image Storage
  - CT Image Storage
  - MR Image Storage
  - PET Image Storage
  - NM Image Storage
  - XA Image Storage
  - US Image Storage
  - US Multi-frame Image Storage
  - SC Image Storage
  - Enhanced CT Image Storage
  - Enhanced MR Image Storage

3D Comparison
Allows direct side-by-side comparison and synchronization of multiple 3D data. Main functions include:
- Simultaneous display of images in multiple series
- Synchronization using “Image Intelligence”
- Synchronization of various operations between images, including measurements, annotations, and histograms
- Display of the average image

3D Compositor
Helps with complex surgical interventions. The software allows the fusion of up to five series in the same space to display the volume rendering of combined images. Applications include display of CT images of the liver exposed at multiple time phases, CT images of bone fused with MRI images of soft tissue, and MRA images of artery with phase contrast of vein.

3D Viewer
Allows orthogonal, oblique, and endoscopic analysis of CT, MR, NM, and PT data. Main functions include:
- Macros: Save and play workflows
- 2D and 3D display of cross-sections
- Body part recognition, extraction, and removal, including:
  - Bone extraction or removal (CT)
  - Bed removal (automatic)
Brain extraction (CT or MR)
Heart extraction (CT)
Colon extraction (CT)
Lung and bronchus extractions (CT)
Liver extraction (CT)
Tumor extraction (CT)
Vessel extraction (CT)
Hip extraction (CT)
Spine extraction (CT)
Bone separation (CT)
Tube extraction (CT)
Cerebral vessels (CT)
Small bone extractor (CT)

- Insertion of image planes: Inserts 2D cross-section planes into 3D view and synchronizes with 2D cross-section view
- Outputs observations and images to a report
- Launch of General CPR tool for vessel analysis
- 3D reformats, including
  - Volume rendering (VR)
  - Shaded surface rendering (SSD)
  - Maximum intensity projection (MIP)
  - Minimum intensity projection (MinIP)
  - Ray summation (RaySum)
- VR color template
- Mask editing
- Object extraction and removal using erosion, dilation, threshold, etc.
- Multi-masking of up to 12 layers
  - Reverse, ADD, SUB, AND, XOR operations

### 3D Viewer with VE

Allows a fly-through with contrast-enhanced vessels or hollow structures. Main features include:
- Observation of the external wall of hollow organs
- Ability to move automatically without hitting the walls of the lumen
- Automatic recording of the path of the endoscope camera

### 4D Viewer

View CT and MRI multiphasic data in cine mode. Examples include cardiac CT or MRI or cine plays with synchronization between 2D cross-sections and 3D images. Main functions include:
- Ability to specify display time for each phase in milliseconds or percentage (%) of the total play time.
- Ability to create movies of all images or only 3D images

### ADC Viewer

Calculates and visualizes apparent diffusion coefficients from information about signal values of diffusion-weighted images collected with MR. Main functions include:
- Display of ADC map and EADC map images
- Measurement of ADC values in ROIs
- Pseudo-color display of ADC map images
- Blending display of ADC map images and background images
- Automatic/manual registration of ADC map images and background images
Combination
Combines multiple series into a single series, especially useful for visualizing multiple spine or vessel series as a single image. Images do not need to overlap, but should be captured at continuing positions. Main functions include:
- Display of orthogonal sections of MIP created by combining different series
- Ability to save DICOM images after combining

Dental MPR
Creates and displays panoramic images of teeth and alveolar bones, useful for implant planning. Main functions include:
- Display of cross-sections
- Display of panorama images of alveolar bones
- Virtual implant operations
- Ability to output to DICOM or Windows printer

Dynamic Data
Allows you to conduct clinical assessment of images over time, including breast and prostate MRI and dynamic PET analysis. The software displays individual parameter images or time-intensity/time-activity curves of slices of multiphase data. Main functions include:
- Loading of single or multiple slice cine images
- Display of time-intensity curves
- Display of time-activity curves (for NM or PET data)
- Display of parameter images (difference, time to peak, max-min, area underneath curve)
- Measurement of circular, rectangular, and freehand ROIs. Output of measurement results in .csv format.
- Display and editing of time

Fat Analysis 2D and 3D
Calculates subcutaneous fat, visceral fat, and psoas muscle volume, useful for monitoring sarcopenia, cachexia, and response to chemotherapy. Main functions include:
- Three-dimensional analysis and display of subcutaneous and visceral fat, current and prior
- Calculation of the area of subcutaneous fat and visceral fat for each slice
- Extraction of psoas muscle with volume calculation
- Calculation of circumference of the body surface, fat ratio, BMI

Fusion Viewer
Allows you to conduct clinical assessment of images over time and analyze anatomical and physiological data between two 3D intra/intermodality images. Clinical applications include PET-MR, SPECT-CT, and
multiphasic MRI. Main functions include:
- Comparison reading of current to nine priors
- Reference reading
- MPR reading
- Configurable overlay and blending
- Automatic rigid registration
- Manual rigid registration by translation and rotation
- Composites of two images using rigid and/or flexible body registration and support for the following post-processing reconstructions for 3D viewing: subtraction value, absolute subtraction value, addition value, average value, maximum value, minimum value. In case of different modalities, WL conversion can be specified for reconstruction.
- SUV evaluation for PT data
- Layout options optimal for PET and SPECT-CT viewing
- Measurement of SUV
- Comparison with past analysis results and report output

**General CPR**
Visualizes curved planar reconstructions (CPR), useful for clinical analysis of blood vessels (aorta, carotid, etc.) and other tubular structures. Main functions include:
- Creation of CPR path
- Modification of CPR center line and contour
- CPR image display
- Measurement of stenosis ratios
- Color-coded display from color mapping analysis
- Virtual stent graft with TAA, AAA, and TAVR templates

**MPR Reformat**
Creates a plane along a straight line or in the shape of a fan on 2D images and prints or saves the plane as a new image. Links directly to 3D Viewer for additional analysis.

**Sector MPR**
Simulates ultrasound examinations, particularly for aspiration and biopsy planning. The software provides display of single or multiphasic studies, allowing you to visualize probe and centesis placement. Main functions include:
- Display of sector MPR images
- Cine playback of multiphasic MPR images
- Display of pseudo light-decay shading for realistic visualization
- Measurements of sector MPR images for centesis planning

**Slicer**
Reconstructs slice data through various translations, especially helpful for complex spinal analysis such as scoliosis treatment planning. Main functions include:
- Display slice images
- Reformatting and reconstruction options
- Specialized layouts for slice visualization
- Spine detection with spine labeling
- Ability to output slice images to DICOM or Windows printers
Surface Viewer
Creates and displays a polygon mesh from the bounding surface determined by threshold processing of volume data using the marching cubes algorithm. You can generate multiple polygon meshes, edit them, and save them to external files.

TX Map
Provides calculations derived from the MR signal values. Clinical utility of T2 assessment includes cartilage and collagen analysis. T2* is useful to determine iron deposits and distribution. Main functions include:
- Display of the T2* map
- Measurement of T2* values in ROIs
- Monitoring of the T2* map time intensity curve
- Pseudo-color display of T2* map images

CARDIOLOGY
4-Chamber Analysis
Extracts left and right ventricles, atria, and myocardium region from CT images consisting of the multiple time phases, calculates cardiac function parameters such as ventricular ejection fraction, and enables observation of transitions in ventricle and atrial volume. Main functions include:
- Pre-rendering and automatic extraction of ventricular, atrial, and myocardial regions
- 3D surface rendering of ventricular, atrial, and myocardial regions; saves to .stl format for 3D printing
- Automatic extraction of the contours of ventricle and myocardium, which are required for cardiac function analysis
- Display of long- and short-axis images of the heart
- 3D mapping display of analysis results
- Volume measurement and bull’s-eye display of ventricle, atrium, and myocardium
- Measurement of various cardiac function evaluations, including end-diastolic volume, end-systolic volume, end-diastolic ventricular index, end-systolic ventricular index, stroke volume, cardiac output, peak filling rate, time to peak filling, cardiac index, ejection fraction, body surface area, heart rate, and myocardial mass
- Ability to output cine movies
- Non-rigid phase registration

Aortic Valve Analysis (TAVR)
Useful in transcatheter aortic valve replacement (TAVR) planning. Measures various aspects of the vicinity of the aortic valve by extracting the heart and aorta regions from the input CT images. Allows confirmation of the size of the aorta and the performance and calcification of the aortic valve to support aortic valve replacement. Main functions include:
- Pre-rendering with automatic extraction of the heart and aorta regions
- Allows single or multiphase data
- Automatic detection of the contour of the aorta
- Measurement of circumference, area, major and minor axis, average diameter and area, distance to right and left coronary artery, and plaque volumes
- Transapical approach displays and measurements
- Coronary cusp labeling
- Virtual valves with presets
- Ability to output cine movies and data to report summary
- Automatic extraction of the heart
- Automatic extraction of ventricular, atrial, and myocardial regions
- Automatic pulmonary vein extraction
- Extraction and visualization of esophagus for positioning
- 3D view inside the pulmonary vein
- Virtual endoscopic view of the interior of the pulmonary vein

**Calcium Scoring**
Displays the plaque area of the coronary artery by color and calculates the quantitative value of plaque using the Agatston score method. Main functions include:
- Automatic extraction of the heart
- Calculation based on the Agatston score method
- Threshold value setting for scoring
- Specification for the plaque area in 2D and 3D images

**Cardiac Ablation Analysis**
Extracts left and right ventricles, atria, and myocardium regions from CT images consisting of the multiple time phases. Also extracts the pulmonary vein based on the left atrium region, in pre-operation simulation for ablation, and in post-operation observation. Main functions include:
- Automatic extraction of the heart
- Automatic extraction of ventricular, atrial, and myocardial regions
- Automatic pulmonary vein extraction
- Extraction and visualization of esophagus for positioning
- 3D view inside the pulmonary vein
- Virtual endoscopic view of the interior of the pulmonary vein

**Cardiac Function CT**
Enables cardiac function analysis by obtaining the contour of the ventricle and myocardium from CT images constructed by the multiple time phases. Calculates ejection fraction, end-diastolic volume, end-systolic volume, stroke volume, etc. Main functions include:
- Automatic extraction of the heart
- Automatic extraction of the contours of the ventricle and myocardium, which is required for cardiac function analysis
- Display of the long- and short-axis images of the heart
- 3D mapping display of analysis results
- Volume measurement and display of the bull’s-eye for the ventricle and myocardium
- Measurement of various cardiac function evaluations, including end-diastolic volume, end-systolic volume, end-diastolic ventricular index, end-systolic ventricular index, stroke volume, cardiac output, peak filling rate, time to peak filling, cardiac index, ejection fraction, body surface area, heart rate, and myocardial mass
- Ability to output cine movies
Cardiac Function MR
Evaluates cardiac function, obtains ventricle and myocardium boundaries from MR images consisting of multiple time phases, and calculates ejection fraction, end-diastolic volume, end-systolic volume, stroke volume, and other related information.

The contour of the ventricle and cardiac wall can be set by automatic extraction based on the image information or by user input or modification. The calculated result can be displayed as a graph or bull’s-eye images and printed as a report. Main functions include:
- Semiautomatic extraction of the contours of the right and left ventricle and myocardium, which are required for cardiac function analysis
- Display of long- and short-axis images of the heart
- 3D mapping display of analysis results
- Volume measurement and display of the bull’s-eye for the ventricle and myocardium
- Display of measurement results, including end-diastolic volume, end-systolic volume, end-diastolic ventricular index, end-systolic ventricular index, stroke volume, cardiac output, peak filling rate, time to peak filling, cardiac index, ejection fraction, body surface area, heart rate, and myocardial mass
- Calculation of the ventricle capacity from a long-axis image with the Area-Length method
- Ability to output cine movies

Cardiac Fusion
Allows you to view the fusion of cardiac anatomy and functional analysis. Main functions include:
- Display of axial, sagittal, and coronal plane images
- Overlay display of functional and structural images
- Automatic and manual registration of images

Cardiac Perfusion CT
Analyzes myocardial blood flow using multiphase 3D heart images. Myocardial blood volume (MBV), myocardial blood flow (MBF), time to peak (TTP), peak enhancement (PE), and peak enhancement ratio (PER) are calculated as analysis results. The main functions include:
- Position detection and correction of arteries
- Visualization of intensity changes in each phase
- Calculation of MBV, MBF, TTP, PE, and PER
- Myocardial territory extraction

Coronary Analysis CT
Extracts the path of the target blood vessels to allow evaluation of the coronary arteries. Main functions include:
- Display of axial, sagittal, and coronal images
- Automatic extraction of the heart
- Automatic extraction of coronary arteries
- Color-coded display of plaque (hard plaque and soft plaque)
- Measurement of coronary artery stenosis ratios
- Virtual stent graft
- Display of coronary artery CPR images
**Delayed Enhancement MR**

Used to analyze myocardial viability. Measurements for delayed enhancement include area and volume. Displays of the enhanced area can be overlaid in the bull’s-eye map. Short-axis display uses enhanced area, mean intensity, and ratio inner and outer wall.

**Coronary Analysis MR**

Uses MR images to extract the path of the target blood vessels and performs evaluation of the coronary arteries. Main functions include:

- Display of axial, sagittal, and coronal images
- Automatic extraction of coronary arteries
- Color mapping analysis
- Measurement of coronary artery stenosis ratios
- Virtual stent graft
- Display of coronary artery CPR images
- Ability to save coronary artery CPR and orthogonal plane images
- Ability to modify coronary artery paths and heart region
- Various types of 3D displays for observation of coronary arteries

**Flow Analysis MR**

Allows calculation of the blood flow volume and the flow velocity per heart rate velocity of an arranged ROI. Main functions include:

- Display of analysis table (flow volume analysis and flow velocity analysis)
- Display of blood flow velocity image
- Display of original image, phase image, or absolute value image
- Display of original image, phase image, or absolute value image, overlapped with the blood flow velocity image
- Display of the result of the flow volume analysis and the flow velocity analysis by the time-intensity curve
- Comparison with past analysis results and report output
**GASTROENTEROLOGY**

**Colon Analysis**

Allows viewing of the colon to detect polyps, masses, cancers, and other lesions. Can be used for reading, interpreting, reporting, and screening. Main functions include:

- Automatic extraction of the intestinal canal
- Automatic centerline tracking of intestinal tract
- Observation options for entire colon and lumen
- Comparative observation for supine and prone positions
- Lesion observation and analysis tools
- Special displays such as colon unfolded cube view display, straight open display, straight cross-section display, etc.
- Digital cleansing
- Observation of lesions and colon in 2D and/or 3D
- Simultaneous display of colon and surrounding organs for treatment planning

**Intravoxel Incoherent Motion (IVIM) MR**

Uses diffusion-weighted images to provide quantitative data from tissue microcapillary perfusion. Automatically displays an ADC map, eADC map, D map, D* map, and f map. ROIs can be selectively placed over areas of disease to generate results.

**Liver Analysis CT/MR**

Useful for liver tumor analysis and resection planning. Allows extraction of the liver and nearby vessel regions from contrast-enhanced CT and MRI images and displays the results as 3D-mapped images. In addition, the dominant region of the extracted liver region, portal vein, and veins can be extracted and divided into areas. Hepatectomy simulation can be performed. Main functions include:

- Display of images in axial, sagittal, and coronal reformats
- Semiautomatic extraction of liver region
- Semiautomatic or manual options for paths of artery, vein, portal, biliary, and other tubular structures
- Simultaneous display of liver, blood vessels, bile duct, tumors, bladder, body surface, bones, and other regions
- Volume calculations of liver, tumors, gallbladder, and other regions
- Extraction of vascular territories in liver
- Extraction of resection areas by portal or arterial territory, drill, or manual selections
- Manual modification of any extractions
- Observation and measurements through sector MPR of the liver region
- Fusion of NM or MR comparison data
- Ability to capture and save the tumor list
- Automatic extraction of the inferior vena cava (CT only)

**Endoscopic Simulator**

Used for laparoscopic surgery simulation. Segments vessels, skin, bone, pancreas, spleen, and tumors. Also simulates inflation of the abdomen, port placement, and positioning. Can perform virtual resection of organs with pertinent volumes.
Liver Analysis MR
Displays MR multiphase contrast-enhanced images and reference images. You can calculate and view calculation results for liver and spleen regions. Main functions include:
• Display of multiphase contrast-enhanced images and reference images
• Extraction of liver and spleen regions
• Visualization of calculation results
• Manual modification of extractions

NEUROLOGY
Brain Perfusion CT
Allows analysis of the changes in cerebral blood flow from the dynamic scan images of CT for the same slice and calculation of cerebral blood volume (CBV), cerebral blood flow (CBF), mean transient time (MTT), and time to peak (TTP) from the analysis results. Main functions include:
• Analysis of 3D or 4D brain perfusion CT data
• Automatic registration
• Position detection and correction of arteries and veins
• Calculation of CBV, CBF, MTT, and TTP
• Display of the analysis result list

Brain Perfusion MR
Allows analysis of the changes in cerebral blood flow from the dynamic scan images of CT for the same slice and calculation of cerebral blood volume (CBV), cerebral blood flow (CBF), mean transient time (MTT), and time to peak (TTP) from the analysis results. Main functions include:
• Automatic registration
• Position detection and correction of arteries and veins

• Calculation of CBV, CBF, MTT, and TTP
• Display of the analysis result list
• Ability to blend with the ADC map

Craniotomy/Tensor Analysis
Enables tensor analysis from diffusion-weighted MR images and tractography-based extraction and observation of white matter tractography pathways. You can load additional images (mainly CT images) and extract skin, bone, brain parenchyma, tumor, and cerebral vessels in craniotomy simulations. Main functions include:
• Display of fractional anisotropy (FA) and diffusion color map images
• Ability to extract and observe white matter tractography
• Ability to calculate FA value, number of fibers, area, and volume in the specified ROI
• Simultaneous display of white matter tractography and skin, bone, brain parenchyma, tumor, artery, vein, and other regions
• Simultaneous display of DWI and ADC, useful to differentiate between malignant and benign tumors
• Craniotomy simulations involving cutting of skin and bone regions, brain surface clipping by depth, and tumor plane clipping
• Automatic and manual data registration options
Vessel Extraction
Semiautomatically extracts the blood vessel region from the post-contrast image by removing the bone region using the pre-contrast image. Main functions include:
- Display of three planes (axial, sagittal, and coronal) and respective 3D images
- Display of artery, vein, and calcium
- Automatic and manual registration of images
- Displays of the brain vessel extraction result as 3D, MIP, or fusion
- Stereoscopic display using two 3D images with differing angles

ONCOLOGY
Abdominal Perfusion CT
Allows analysis of the blood flow of abdominal organs over time (in 4D) using multiphase 3D abdomen images. Tissue blood volume (TBV), tissue blood flow (TBF), mean transient time (MTT), and time to peak (TTP) are calculated as analysis results. Main functions include:
- Position detection and correction of arteries and veins
- Calculation of TBV, TBF, MTT, and TTP
- Display of analysis result list

Breast Analysis MR
Used to analyze tumors in the breast and generate a BI-RADS report. Tools include kinetic curves for wash-in and washout and subtraction of pre- and post-contrast. Measurements include distance from the nipple, distance from the skin, distance from the chest wall, and tumor volume. Color overlays can be shown as difference, initial phase enhancement, delayed phase enhancement, and fast washout.

Nuclear Medicine Viewer
Combines multiple series into a single series, fuses and displays CT and nuclear medicine (SPECT or PET) images to visualize anatomical and physiological data together. Main functions include:
- Fusion of structural images captured by CT and functional images using rigid or non-rigid registration
- Manual or automatic registration
- Fusion display in orthogonal or oblique planes

Oncology Viewer
Identifies and tracks temporal changes of solid tumors using PERCIST, RECIST, WHO, mRECIST, or Choi evaluation criteria. Main functions include:
- Lung RADS reporting
- Lesion measurement and display
- Background and lesion measurement
- Long-axis diameter and perimeter measurements of tumors and nodules
- Evaluation according to tumor assessment criteria (WHO, RECIST 1.0 and 1.1, mRECIST, PERCIST 1.0, Choi criteria)
- Automatic or manual registration of PET/CT
- Comparison and synchronization with up to nine historical studies
- Data evaluation display with exportable trend graphs and data tables

Prostate Viewer MR

Used to analyze prostate gland tumors. Enables diameter and volume measurements of the prostate gland and its lesions. Viewing tools include comparative observation of multiple series, T2, ADC, DWI, DCE, and time-intensity curves. Observation and acquired measurements can be used to generate a PI-RADS report.

Lung Analysis Resection

Extracts lung regions, pulmonary artery, pulmonary vein, bronchus, and other regions for 3D visualization of the lungs. Simulates lung resection by extracting and segmenting the territories of pulmonary vessels and bronchi, useful for preoperative planning. The main functions include:
- Automatic and semiautomatic extraction of the lung field and lung lobes
- Extraction and display of diaphragm region
- Extraction of tumors with volume calculation
- Automatic extraction of the pulmonary artery, pulmonary vein, and bronchus
- Surface display, printable to .stl formats for 3D printing
- Calculation of the territories of pulmonary vessels and bronchi of the lung field region
- Long-axis diameter and perimeter measurements of tumors and nodules
- Display of oblique fissures of the lung(s)

PULMONOLOGY

Lung Analysis/Airway

Allows analysis of lung nodules, bronchi, and low-attenuation areas of the lungs, useful for assessing nodules, airway obstructions, and lung data over time. Main functions include:
- Automatic and semiautomatic extraction of the lung field and lung lobes
Lung Analysis Scope

Recommended for pulmonologists planning endoscopy procedures. Searches for optimal bronchus pathways toward a lung lesion. Performs a bronchoscope simulation along the path, helpful to visualize difficult procedures prior to invasive examinations. Main functions include:

- Automatic extraction of the lung field and bronchus
- Semiautomatic extraction of lung nodule, setting of lymph node
- Automatic search for optimum bronchus path to access the lung nodule
- Bronchus display in realistic patient procedure orientation
- Virtual endoscopic image display along the bronchus path

Kidney Analysis

Useful tool for kidney tumor analysis and nephrectomy planning. Extracts the kidney, renal cortex, and regions including various surrounding organs from contrast-enhanced CT images and displays results as 3D images. In addition, further extraction of the extracted kidney region and arterial territory region extraction are possible, regions can be divided, and nephrectomy simulations can be performed. Main functions include:

- Display of axial, sagittal, and coronal images
- Semiautomatic extraction of the kidney region
- Automatic and semiautomatic vessel extraction
- Simultaneous display of kidney, blood vessels, urinary duct, tumors, renal calculus, ureters and bladder, body surface, bones, and other regions

Kidney Volumetry

Generates volume analysis of the kidneys on non-contrast CT scans. These measurements can be compared to past results to observe changes in volume over time. The main functions are:

- Semiautomatic extraction and editing of the kidney region
- Measurements in the kidney region
- Observation of the kidney region over time
COMMON FEATURES

These features are common across all Synapse 3D application tools, where applicable:

- 2D cross-section display
- Changing window width and level
- Rendering options include MIP, MinIP, volume rendering (VR), RaySum, and surface
- Movie creation and saving
- Gamma and image edge/smoothing filters
- Measurement and analysis
  - Measures lines, polygonal lines, angles, intensity values, rectangles, ellipses, polygons, freehand, boxes, and spheres
  - Calculates volume of mask region and average/max/min/standard deviation of intensity values in 3D images
  - Calculates volume of mask region and average/max/min/standard deviation of intensity values in 2D images
- Displays profile curve or histogram of each measurement
- Stores measurement results and graph in text file (.csv, .txt) or in captured image
- Ability to create ROI along the contour of an image by detecting contours during freehand measurement
- Annotations
- Clipping
- User-customizable settings
- Reformat by straight line, fan shape, or circular to preset thicknesses and degrees
- Report to DICOM and PDF
- Ability to save workflow snapshots for viewing on zero-client or for workflow enhancement

To learn more, visit 3DEnterpriseImaging.com or email Inside Sales at fmsusalesinquiry@fujifilm.com.