# Referentials in Anatomist

Anatomist
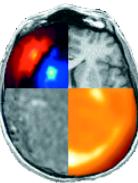
- Visualization of several types of objects : image, volume (3D, 4D), mesh, graph (sulci, ROI)

- Management of coordinate systems and transformations

- Possibility of building complex 3D scenes with several objects (merging, superimposing...).

- A lot of tools : color palettes, region of interest module, manual registration
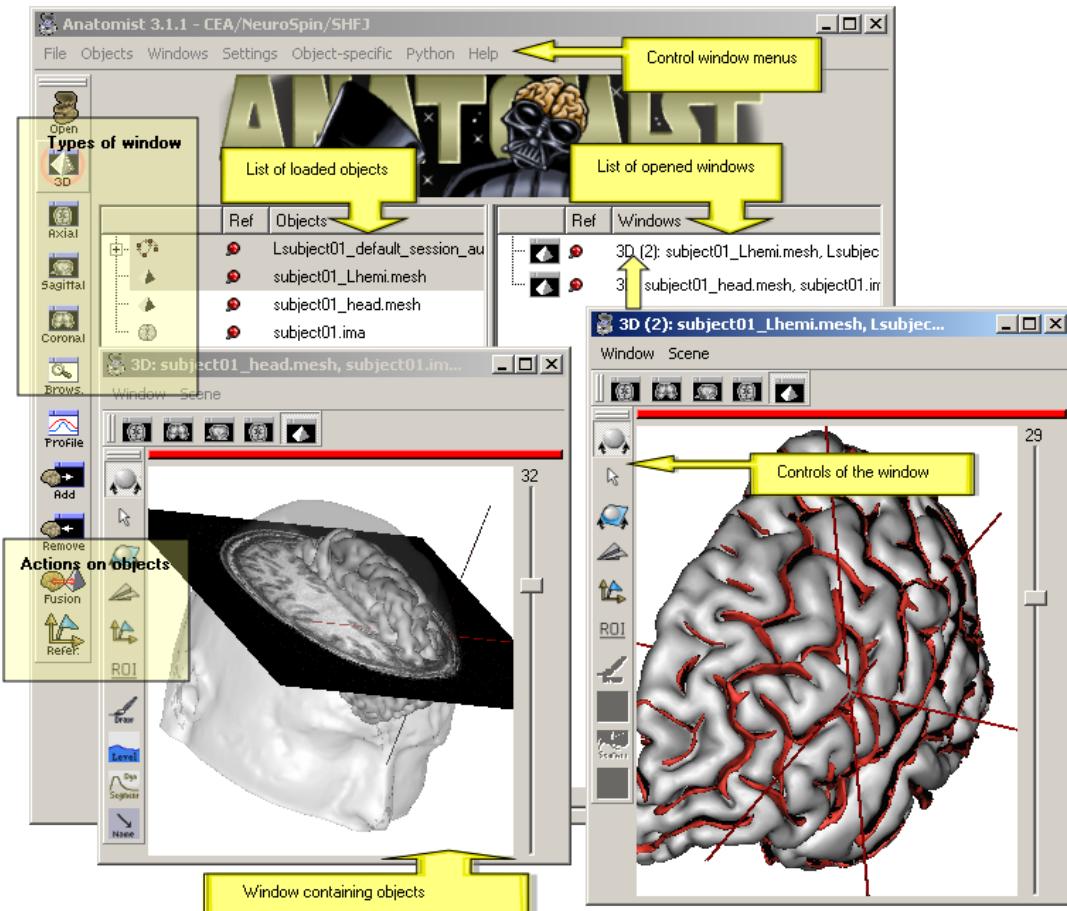
Anatomist features
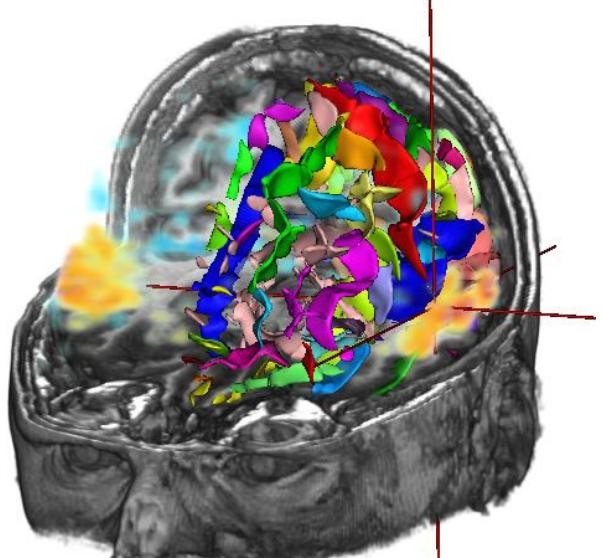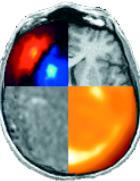

Volume rendering
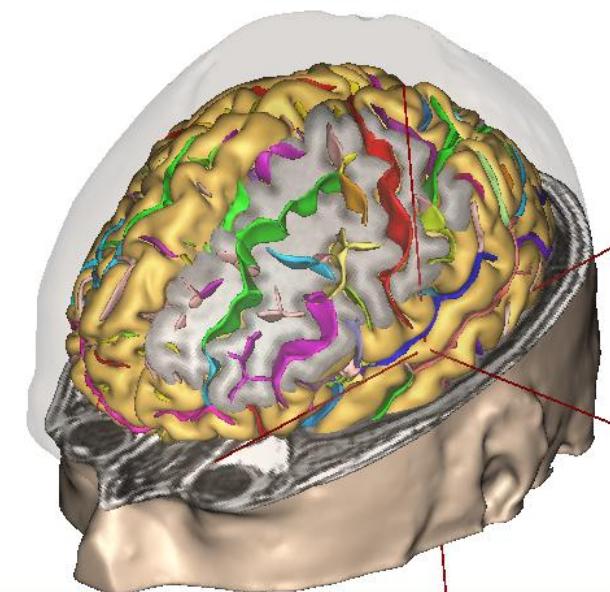
Cut mesh
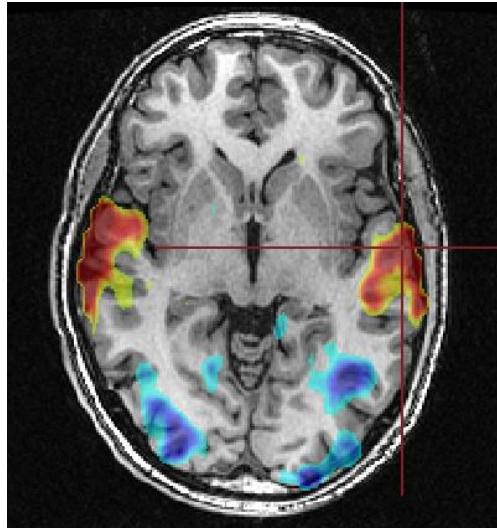
2D fusion
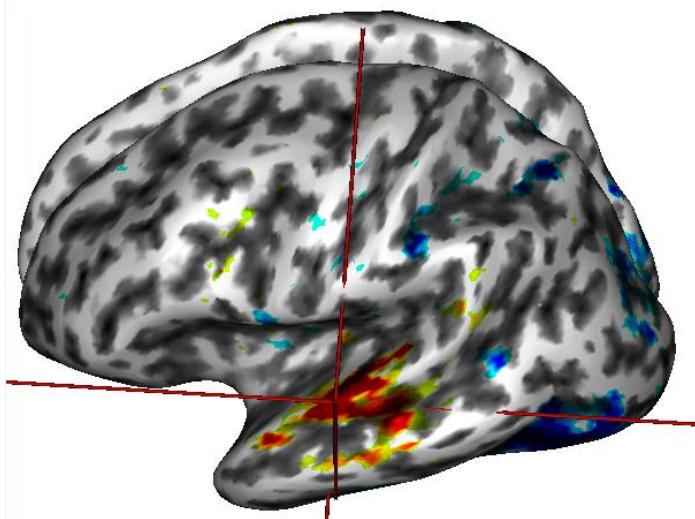
3D fusion
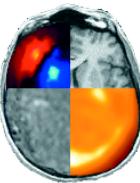
- Different subjects, acquisitions -> different referentials

- Transformation : changes coordinates system from one referential to another
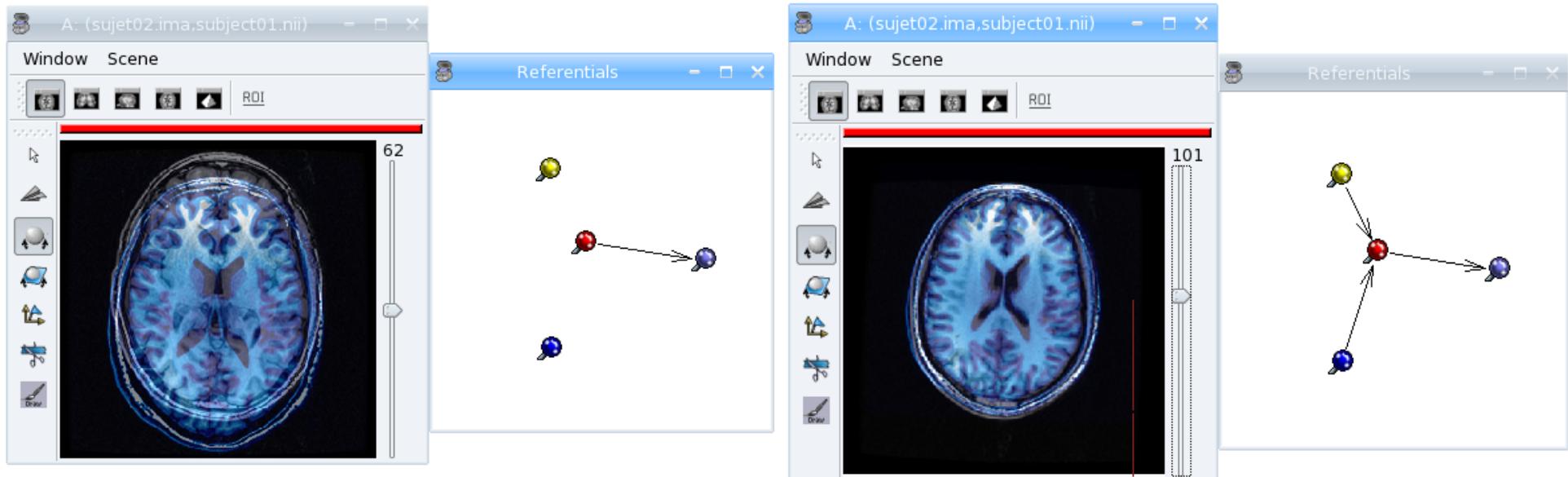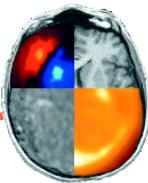
- Anatomist default referential

  - X axis: right to left
  - Y axis: front to back
  - Z axis: top to bottom
  - origin: the center of the first voxel: in the top, right, front corner

- Radiological convention by default
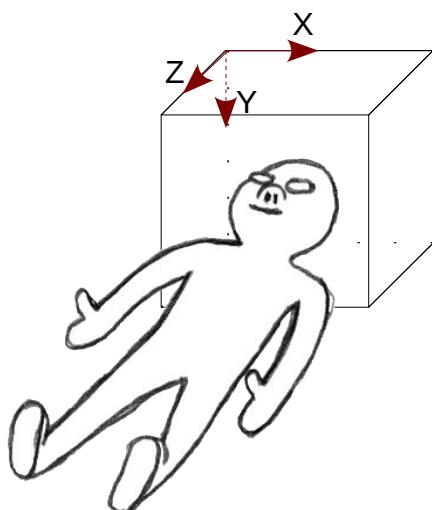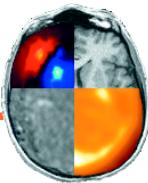
SPM default referential

- X axis: left to right
- Y axis: back to front
- Z axis: bottom to top
- origin: the center of image.

Neurological convention

Superimposing anatomical and functional MRI
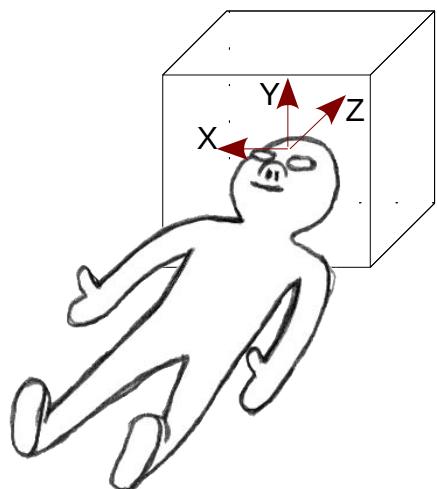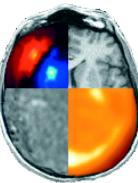
- ## SPM Anatomy normalization

  - ### transformation matrix in a matlab file (.mat)

  - ### can be converted to Anatomist transformation (.trm) with Brainvisa process tools -> converters -> **SPM sn3d to AIMS transformation converter**

- ## Normalized fMRI data

  - ### Nifti format contains transformation information

  - ### Anatomist option : **apply SPM/Nifti builtin referential**

  - ### Be careful : SPM generally doesn't indicate the destination of the transformation, so we have to add the information in Anatomist referential window.

Superimposing anatomical and functional MRI