

Local Coordinate System

An object's local coordinate system (LCS) is the transform from the object's segmented image frame to its local coordinate system (as if you were traveling from the segmented frame to the LCS). This LCS is stored in the subject file and should be defined before tracking in [X4D](#) or [Locate3D](#). This is necessary because the tracking output for each X-ray frame is the transformation from the X-ray lab frame to the object's LCS.

Local Coordinate System Widget

Orient3D's Local Coordinate System widget allows users to create an LCS for each object in their data set.

Local Coordinate System (LCS)

Algorithms

Vertebra [Anderst]

Distal Femur [Miranda]

Proximal Tibia [Miranda]

ACS Landmarks (mandatory: red - optional: black):

ShaftProximal:

None

ShaftDistal:

None

Anterior:

None

Apply

☒ Visual3D

Define Proximal Joint and Radius

Lateral

Joint Center

Medial

None

None

None

Radius (Meters)

Define Distal Joint and Radius

Lateral

Joint Center

Medial

None

None

None

Radius (Meters)

Extra Target to Define Orientation (if needed)

Location

None

LCS Algorithms

Orient3D's LCS algorithms are implemented in a dll plugin framework, so it is possible to write your own and plug it into Orient3D. The currently implemented algorithms are: Vertebra [Anderst], Distal Femur [Miranda], and Proximal Tibia [Miranda]. See [the documentation](#) for more details.

Visual3D Panel

The Visual3D panel can be opened by checking its checkbox. This panel allows users to create an LCS using [Visual3D](#)'s method of defining proximal and distal [joints](#) with [targets](#). Consult the [Visual3D](#)

[documentation](#) for details on this method.

Tutorials

There are three methods of defining an LCS, as described in the [How To: Define the LCS of an Object](#) tutorial.

See Also

Go back to the [Orient3D Overview](#).

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