

IOR Gait Full Body Model

This tutorial explains how to implement the IOR Full Body Model in Visual3D.

The IOR Full Body Model is a combination of the IOR Multi-Segment Trunk, and the IOR Lower Extremity Model.

The naming convention in this tutorial follows Serge Van Sint Jan's convention.

Downloads

Sample files may be downloaded [here](#).

The zip file contains:

1. C3D files which you can use to follow along with the tutorial
2. A model template which contains the landmark & segment definitions
3. A script which contains the planar & joint angle definitions
4. A report template which plots the relevant kinematics (joint angles & planar angles)
5. A completed CMO file

Target Placement

LCAJ/RCAJ (LA/RA): Left/Right acromion

SJN (IJ): Deepest point of the incisura jugularis

SXS (PX): Xiphoid process, i.e. most caudal point of the sternum

CV7 (C7): Spinous process of the seventh cervical vertebrae

TV2 (T2): Second thoracic vertebrae

TV7 (MAI): Midpoint between the inferior angles of the most caudal points of the two scapulae

LV1, LV3, LV5 (L1, L3, L5):

First, third and fifth lumbar vertebrae

LIAS/RIAS (LASIS/RASIS):

Left/Right anterior superior iliac spine

LIPS/RIPS (LPSIS/RPSIS):

Left/Right posterior superior iliac spine

LFTE/RFTE (LGT/RGT): Most lateral prominence of the greater trochanter

LFLE/RFLE (LLE/RLE): Most medial prominence of the medial femoral epicondyle

LFME/RFME (LME/RME): Most medial prominence of the medial femoral epicondyle

LFAX/RFAX (LHF/RHF): Proximal tip of the head of the fibula

LTTC/RTTC (TT/RTT): Most anterior border of the tibial tuberosity

LFAL/RFAL (LLM/RLM): Lateral prominence of the lateral malleolus

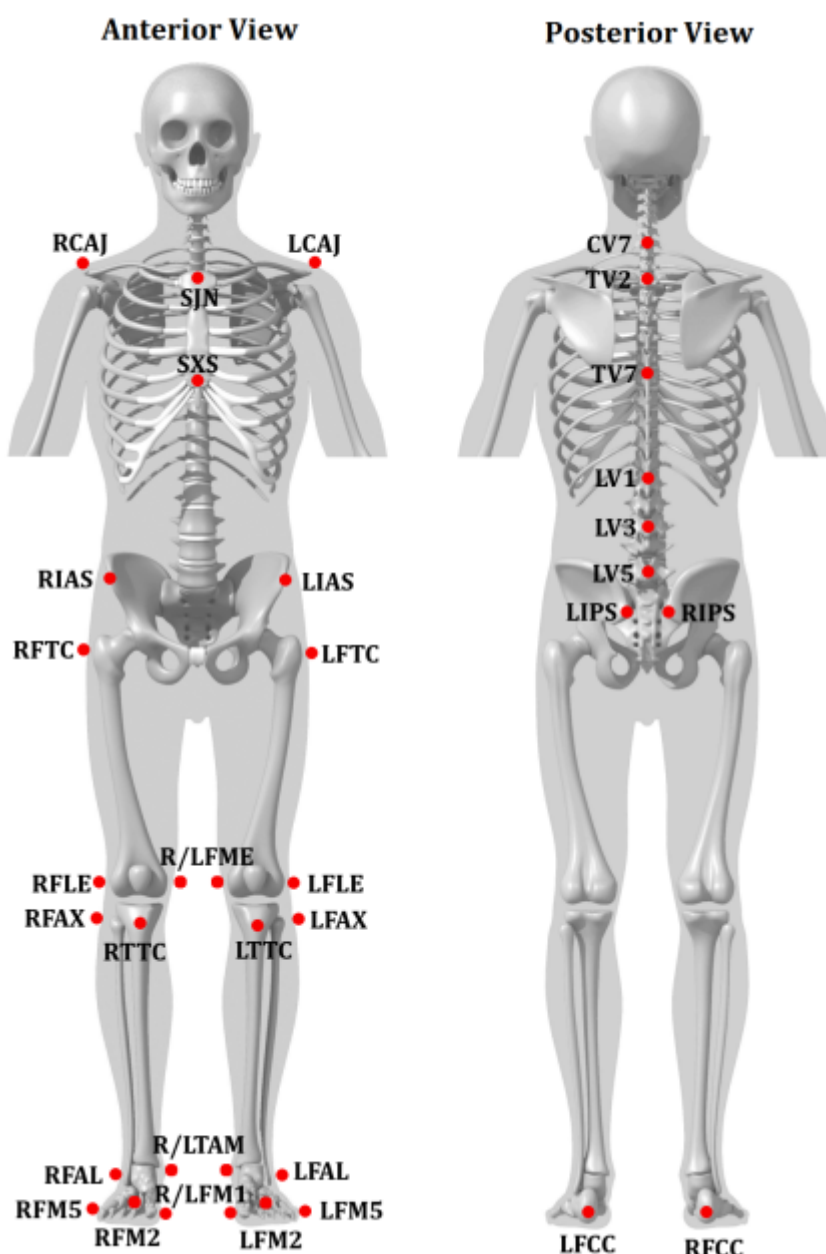
LTAM/RTAM (LMM/RMM): Most medial prominence of the medial malleolus

LFCC/RFCC (LCA/RCA): Aspect of the Achilles tendon insertion on the calcaneus

LFM1/RFM1 (LFM/RFM): Dorsal margin of the first metatarsal head

LFM2/RFM2 (LSM/RSM): Dorsal aspect of the second metatarsal head

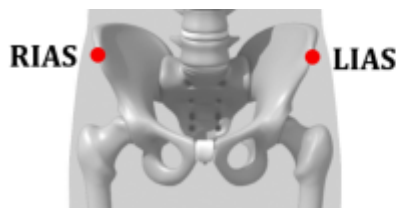
LFM5/RFM5 (LVM/RVM): Dorsal margin of the fifth metatarsal head



Segment Definitions

Pelvis

The pelvis segment coordinate system is consistent with the [CODA pelvis](#), from which the Left and Right Hip Joint centers are automatically created.



LIAS/RIAS (LASIS/RASIS): Left/Right anterior superior iliac spine

LIPS/RIPS (LPSIS/RPSIS): Left/Right posterior superior iliac spine

Pelvis Landmarks

1. Create SCRM:

1. Click **Landmarks** button
2. Click **Add New Landmark** button
3. Create Landmark: SCRM
 - **Landmark Name:** SCRM
 - **Define Orientation Using:**
 - **Starting Point:** RIPS
 - **Ending Point:** LIPS
4. Offset Using the Following **ML/AP/AXIAL** Offsets:
 - **X:** 0.0 **Y:** 0.0 **Z:** 0.5
5. **Check:** Offset by Percent (1.0 = 100%)
6. **Check:** Calibration Only Landmark

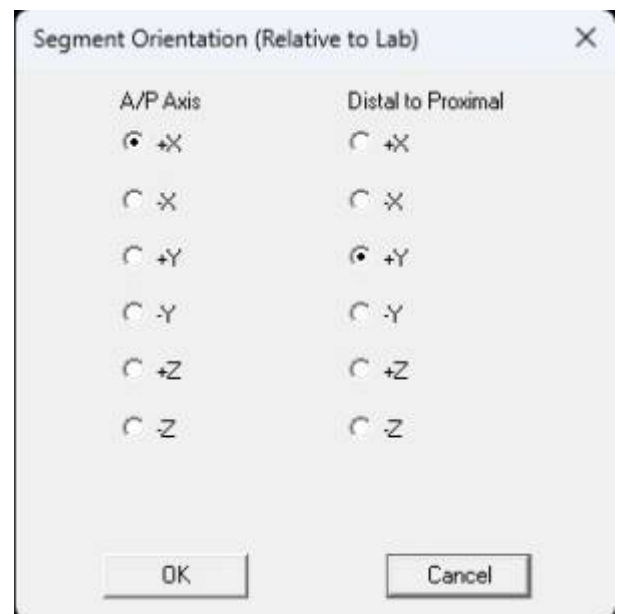
Pelvis Definition

2. Create Pelvis Segment:

The screenshot shows the 'Pelvis' dialog box in a software application. The dialog has several tabs: 'Segments', 'Landmarks', 'Muscles', 'Subject Data / Metrics', 'Segment Properties', 'IK Constraints', and 'Pelvis'. The 'Pelvis' tab is currently selected. Inside the dialog, there are several sections for configuring the pelvis segment. The 'Define Segment Type' section has a dropdown menu set to 'CODA'. The 'Subject Name Prefix' section has a text input field. The 'Define Calibration Signals' section has four dropdown menus: 'R.ASIS' set to 'RIAS', 'L.ASIS' set to 'LIAS', 'R.PSIS' set to 'RIPS', and 'L.PSIS' set to 'LIPS'. The 'Define ASIS Target Radius for Hip Joint Center Offset' section has a text input field set to '0.000'. The 'Select Tracking Signals' section has a checkbox labeled 'Use Calibration Signals for Tracking' which is checked. At the bottom, there is a '6DOF Cutoff Frequency' text input field set to '0.0'. There are four buttons at the bottom: 'Close Tab', 'Guess Properties', 'Apply', and 'Build Model'.

1. In the **Segments** tab, select *Pelvis* in the Segment Name box
2. In **Segment Type**, select CODA
3. Click on the **Create Segment** button
4. In the **Pelvis** dialog:
 - **Define Calibration Targets**
 - **R.ASIS:** RIAS
 - **L.ASIS:** LIAS
 - **R.PSIS:** RIPS
 - **L.PSIS:** LIPS
 - **Select Tracking Targets:**
 - **Check:** Use Calibration Signals for Tracking
5. Close **CODA Segment Markers** dialog box
6. Click on **Build Model**
7. Click on **Close Tab** before proceeding

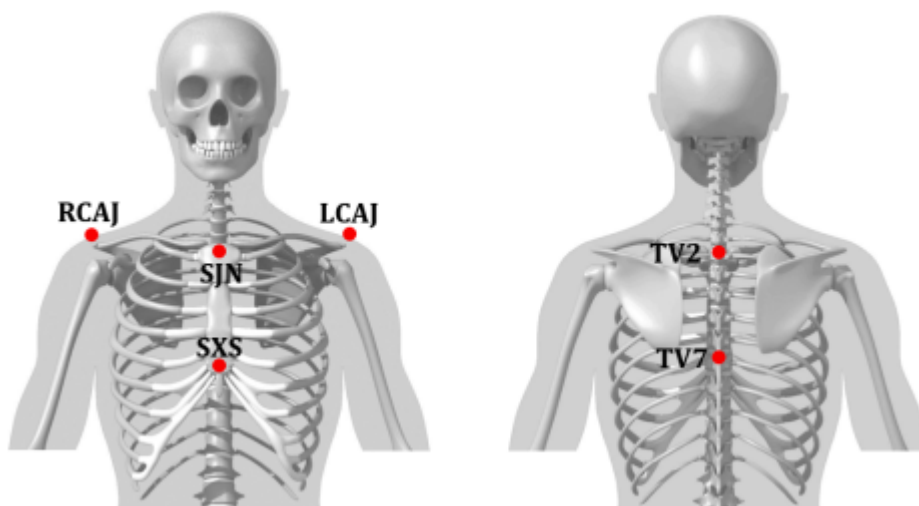
3. Modify the Segment Coordinate System



- Define the Segment Orientation as:
 - **A/P Axis:** +X
 - **Distal to Proximal:** +Y

Thorax Segment

This marker set is consistent with the Rizzoli Gait model and the ISB recommendations.



LCAJ/RCAJ (LAR/RA): Left/Right acromion

SJN (IJ): Deepest point of the incisura jugularis

SXS (PX): Xiphoid process, i.e. most caudal point of the sternum

C7V (C7): Spinous process of the seventh cervical vertebrae

TV2 (T2): Second thoracic vertebrae

TV7 (MAI): Midpoint between the inferior angles of the most caudal points of the two scapulae

Thorax Definition

4. Create Thorax/Ab:

The screenshot shows the 'Thorax' tab of a software interface. It contains several sections for defining joint and radius parameters, tracking signals, and depth.

- Define Proximal Joint and Radius:** Lateral: None, Joint Center: TV2, Medial: None. Radius (Meters): $0.5 * \text{DISTANCE}(\text{RCAJ}, \text{LCAJ})$.
- Define Distal Joint and Radius:** Lateral: None, Joint Center: TV7, Medial: None. Radius (Meters): $0.5 * \text{DISTANCE}(\text{RCAJ}, \text{LCAJ})$.
- Extra Signal to Define Orientation (if needed):** Location: Anterior, SXS.
- Select Tracking Signals:** Use Calibration Signals for Tracking: ☐. A table of signals follows:

☐ RFM1	☐ RIAS	☒ SXS
☐ RFM2	☐ RIPS	☒ TV2
☐ RFM5	☐ RTAM	☒ TV7
☐ RFME	☐ RTTC	
☐ RFTC	☒ SJN	
- Depth (Meters):** 6DOF Cutoff Frequency: 0.0.

Buttons at the bottom: Close Tab, Guess Properties, Apply, Build Model.

1. In the **Segments** tab, select *Thorax/Ab* in the Segment Name box.

2. Click **Kinematic Only**

3. Click on the **Create Segment** button

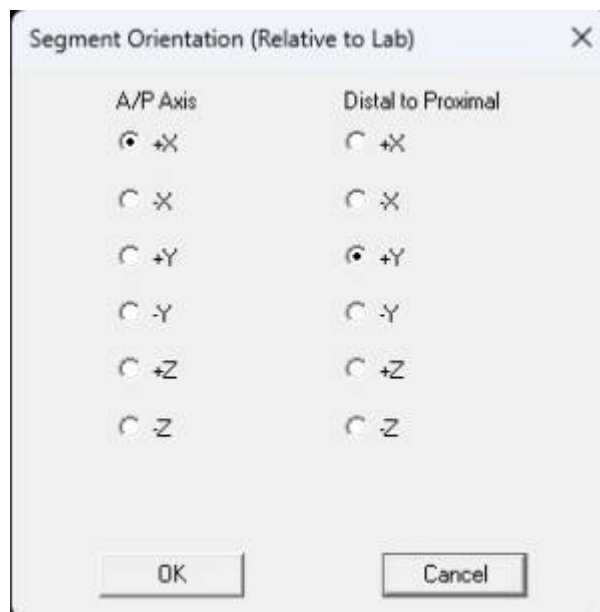
4. In the **Thorax/Ab** tab, enter these values:

- **Define Proximal Joint and Radius**
- **Lateral:** None **Joint:** TV2 **Medial:** None
- **Radius** $0.5 * \text{DISTANCE}(\text{RCAJ}, \text{LCAJ})$
- **Define Distal Joint and Radius**
- **Lateral:** None **Joint:** TV7 **Medial:** None
- **Radius:** $0.5 * \text{DISTANCE}(\text{RCAJ}, \text{LCAJ})$
- **Extra Target to Define Orientation**
- **Location:** Anterior SXS
- **Select Tracking Targets:**
- SJN, SXS, TV2, TV7
- Set **Depth(Meters)** to 0.1

5. Click on **Build Model**

6. Click on **Close Tab** before proceeding.

5. Modify the **Segment Coordinate System** * * *
Define the Segment Orientation as: * **A/P Axis:
+X



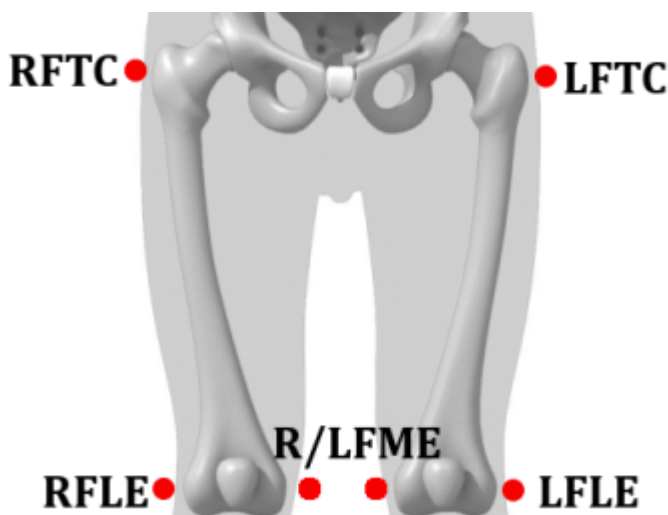
- **Distal to Proximal:** +Y

Change the graphic:

Model File: *thoraciccervicleacromiumtot12.v3g*

Thigh Segment

The RIGHT_HIP/LEFT_HIP landmarks are used to define the thigh segments. These landmarks are created automatically when the Pelvis segment is defined (so the Pelvis must be defined prior to creating the thigh segments).



LFTC/RFTC (LGT/RGT): Most Lateral prominence of the greater trochanter

LFKE/RFLE (LLE/RLE): Most lateral prominence of the lateral femoral epicondyle

LFME/RFME (LME/RME): Most medial prominence of the medial femoral epicondyle

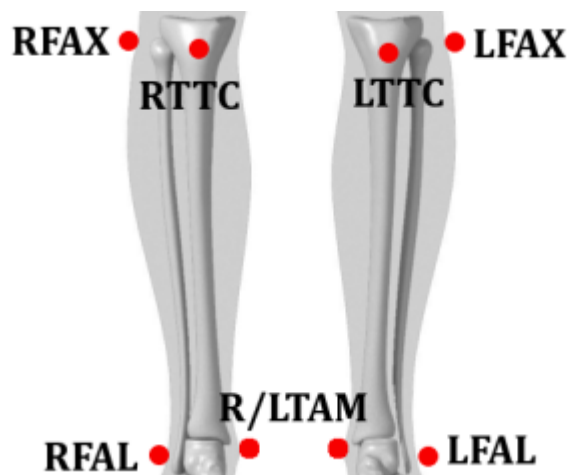
Thigh Definition

6. Create Right Thigh:

1. In the **Segments** tab, select Right Thigh in the Segment Name box
2. Click on the **Create Segment** button
3. In the **Right Thigh** tab, enter these values:
 - **Define Proximal Joint and Radius**
 - **Lateral:** None **Joint** RIGHT_HIP **Medial:** None
 - **Radius:** $0.5 * \text{DISTANCE}(\text{RIGHT_HIP}, \text{LEFT_HIP})$
 - **Define Distal Joint and Radius**
 - **Lateral:** RFLE **Joint:** None **Medial:** RFME
 - **Select Tracking Targets:**
 - RIGHT_HIP, RFLE, RFME, RFTC
4. Click on **Build Model**
5. Click on **Close Tab** before proceeding

Shank Segment

The segment coordinate system is different from the [conventional gait model](#) because the shank segment is designed according to markers located on the tibia and fibula, not the femur as with the Conventional Gait Model



LFAX/RFAX (LHF/RHF): Proximal tip of the head of the fibula

LTTC/RTTC (TT/RTT): Most anterior border of the tibial tuberosity

LFAL/RFAL (LLM/RLM): Lateral prominence of the lateral malleolus

LTAM/RTAM (LMM/RMM): Most medial prominence of the medial malleolus

Shank Landmarks

7. Create RKNE Joint Center:

1. Click **Landmarks** button
2. Click **Add New Landmark** button
3. Create Landmark: RKNE
 - **Landmark Name:** RKNE
 - **Define Orientation Using:**
 - **Starting Point:** RFLE
 - **Ending Point:** RFME
4. Offset Using the Following **AXIAL** Offset: 0.5
5. **Check:** Offset by Percent (1.0 = 100%)

6. **Check:** Calibration Only Landmark

8. Create RANK Joint Center:

The screenshot shows the 'Landmarks' tab in the Visual3D software. The 'RANK' landmark is being configured. The 'Landmark Name' is 'RANK'. Under 'Define Orientation Using:', 'Starting Point' is 'RFAL' (Reference) and 'Ending Point' is 'RTAM' (On a line). There are also fields for '*Lateral object' (On a plane) and '*Project From' (Projection onto a line or plane), both marked as optional. The 'Existing Segment' option is not selected. Under 'Landmark Offset from Start Point (Reference) or Segment Origin', the 'Offset to Existing Calibration Target or Landmark' option is not selected, and 'Offset Using the Following ML/AP/AXIAL Offsets' is selected. The 'AXIAL' offset is set to 0.5. The 'Offset by Percent (1.0 = 100%) (Meters when not checked)' checkbox is checked. At the bottom, the 'Calibration Only Landmark (Not generated for assigned motion file(s))' checkbox is checked. Buttons for 'Undo Changes', 'Apply', 'Build Model', and 'Close Tab' are visible.

1. Click **Landmarks** button
 2. Click **Add New Landmark** button
 3. Create Landmark: RANK
 - **LANDMARK Name:** RANK
 - **Define Orientation Using:**
 - **Starting Point:** RFAL
 - **Ending Point:** RTAM
 4. Offset Using the Following **AXIAL** Offset: 0.5
 5. **Check:** Offset by Percent (1.0 = 100%)
 6. **Check:** Calibration Only Landmark
-

9. Create RTTC_PROJ:

1. Click **Landmarks** button
2. Click **Add New Landmark** button
3. Create Landmark: RTTC_PROJ
 - **Landmark Name:** RTTC_PROJ
 - **Define Orientation Using:**
 - **Starting Point:** RFAX
 - **Ending Point:** RFAL
 - **Lateral Object:** RTAM
 - **Project From:** RTTC
4. **Do Not Check:** Offset by Percent (1.0 = 100%)
5. **Check:** Calibration Only Landmark

10. Create RSK_PROX:

The screenshot shows the 'RSK_PROX' landmark creation dialog in the Visual3D software. The 'Landmarks' tab is selected, and the 'RSK_PROX' landmark is being defined. The 'Define Orientation Using' section is expanded, showing the following settings:

- Starting Point: RANK (Reference)
- Ending Point: RTTC_PROJ (On a line)
- *Lateral object: (On a plane)
- *Project From: RKNE (Projection onto a line or plane)
- * = Optional

The 'Offset by Percent (1.0 = 100%) (Meters when not checked)' checkbox is unchecked. The 'Calibration Only Landmark (Not generated for assigned motion file(s))' checkbox is checked. The 'Apply' button is highlighted.

1. Click **Landmarks** button
2. Click **Add New Landmark** button
3. Create Landmark: RSK_PROX
 - **Landmark Name:** RSK_PROX
 - **Define Orientation Using:**
 - **Starting Point:** RANK
 - **Ending Point:** RTTC_PROJ
 - **Lateral Object:** Leave Blank
 - **Project From:** RKNE
4. **Do NOT Check:** Offset by Percent (1.0 = 100%)
5. **Check:** Calibration Only Landmark

Shank Definition

The screenshot shows the 'Right Shank' tab in the software interface. It contains several sections for defining joint and radius parameters, and a list of tracking targets.

Define Proximal Joint and Radius:

- Lateral: None
- Joint Center: RSK_PROX
- Medial: None
- Radius (Meters): $0.5 * \text{DISTANCE}(\text{RFLE}, \text{RFME})$

Define Distal Joint and Radius:

- Lateral: RFAL
- Joint Center: None
- Medial: RTAM
- Radius (Meters): 0.043403

Extra Target to Define Orientation (if needed):

- Location: None

Select Tracking Targets (Ctrl-Left Mouse Click to Multiselect):

☐ Use Calibration Targets for Tracking

☐ Lab_Origin	☐ RIGHT_HIP	☐ CV7	☐ LFLE
☐ Lab_AX	☐ LEFT_HIP	☐ LCAJ	☐ LFM1
☐ Lab_ML	☐ RPV_AX	☐ LFAL	☐ LFM2
☐ Pel_ML	☐ RTA_OR	☐ LFAX	☐ LFM5
☐ VLab_ML	☐ RTA_ML	☐ LFCC	☐ LFME

Depth (Meters):

Buttons: Close Tab, Guess Properties, Apply, Build Model

11. Create Right Shank:

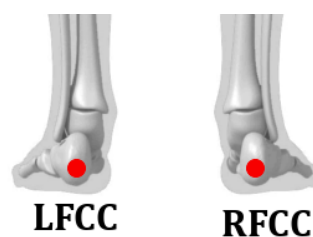
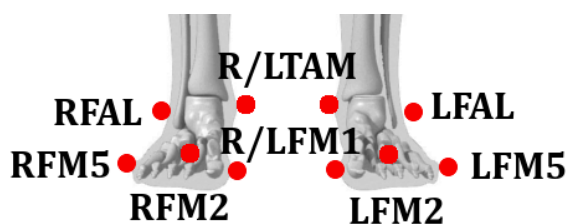
1. In the **Segments** tab, select Right Shank in the Segment Name box
2. Click on the **Create Segment** button
3. In the **Right Shank** tab, enter these values:
 - **Define Proximal Joint and Radius**
 - **Lateral:** None **Joint:** RSK_PROX **Medial:** None
 - **Radius:** $0.5 * \text{DISTANCE}(\text{RFLE}, \text{RFME})$
 - **Define Distal Joint and Radius**
 - **Lateral:** RFAL **Joint:** None **Medial:** RTAM
 - **Select Tracking Targets:**
 - RFAL, RFAX, RTAM, RTTC

12. Modify the Segment Coordinate System:

- Define the Segment Orientation as:
- **A/P Axis:** +X
- **Distal to Proximal:** +Y

Foot Segment

The foot segment coordinate system is consistent with some version of the [Conventional Gait Model](#). The foot segment is created using the RANK/LANK landmarks which are described in the Shank Landmarks section



LFAL/RFAL (LLM/RLM): Lateral prominence of the lateral malleolus

LTAM/RTAM (LMM/RMM): Most medial prominence of the medial malleolus

LFCC/RFCC (LCA/RCA): Aspect of the achilles tendon insertion on the calcaneus

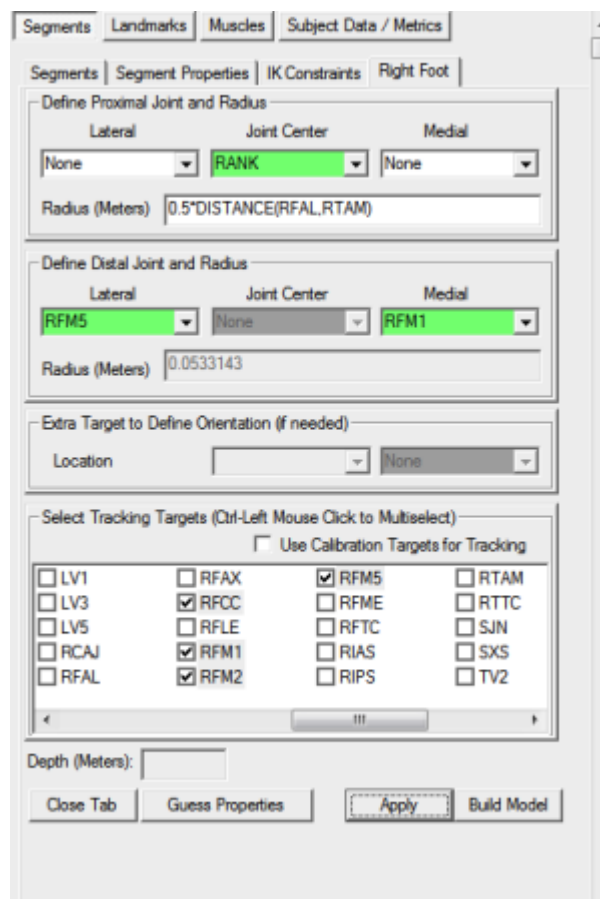
LFM1/RFM1 (LFM/RFM): Dorsal margin of the first metatarsal head

LFM2/RFM2 (LSM/RSM): Dorsal aspect of the second metatarsal head

LEFM5/RFM5 (LVM/RVM): Dorsal margin of the fifth metatarsal head

Kinetic Foot

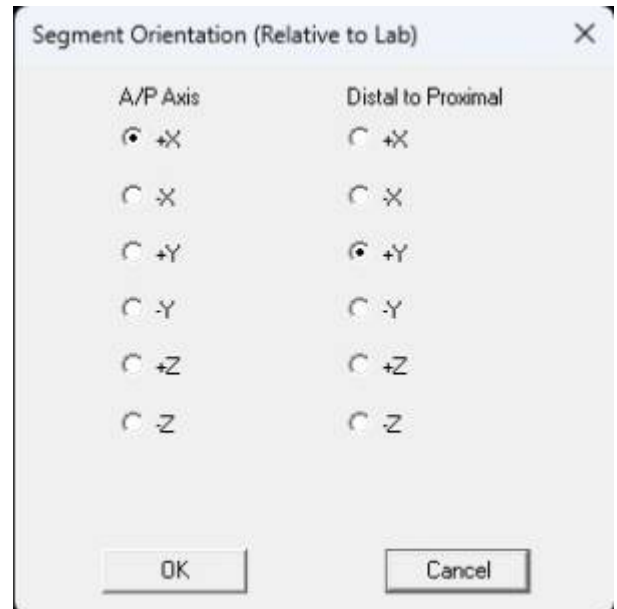
13. Create Right Foot:



1. In the **Segments** tab, select the Right Foot in the Segment Name box
2. Click on the **Create Segment** button
3. In the **Right Foot** tab, enter these values:
 - **Define Proximal Joint and Radius**
 - **Lateral:** None **Joint:** RANK **Medial:** None
 - **Radius:** $0.5 \cdot \text{DISTANCE}(\text{RFAL}, \text{RTAM})$
 - **Define Distal Joint and Radius**

- **Lateral:** RFM5 **Joint:** None **Medial:** RFM1
 - **Select Tracking Targets:**
 - RFCC, RFM1, RFM2, RFM5
4. Click on the **Build Model**
 5. Click on **Close Tab** before proceeding
-

14. Modify the **Segment Coordinate System:**



- Define the Segment Orientation as:
 - **A/P Axis:** +X
 - **Distal to Proximal:** +Y
-

Kinematic Foot Landmarks

15. Create RFT_DIST:

The screenshot shows the 'RFT_DIST' dialog box in the Visual3D software. The 'Landmarks' tab is selected. The 'Landmark Name' is 'RFT_DIST'. Under 'Define Orientation Using:', 'Starting Point' is 'RFCC' (Reference). 'Targets and/or Landmark:' is selected, with 'Ending Point' 'RFM5' (On a line), '*Lateral object' 'RFM1' (On a plane), and '*Project From' 'RFM2' (Projection onto a line or plane). '* = Optional'. 'Existing Segment' is empty. Under 'Landmark Offset from Start Point (Reference) or Segment Origin', 'Offset to Existing Calibration Target or Landmark' is empty. 'Offset Using the Following ML/AP/AXIAL Offsets' is selected, with 'ML', 'AP', and 'AXIAL' fields empty. 'Offset by Percent (1.0 = 100%) (Meters when not checked)' is unchecked. 'Calibration Only Landmark (Not generated for assigned motion file(s))' is checked. Buttons at the bottom are 'Undo Changes', 'Apply', 'Build Model', and 'Close Tab'.

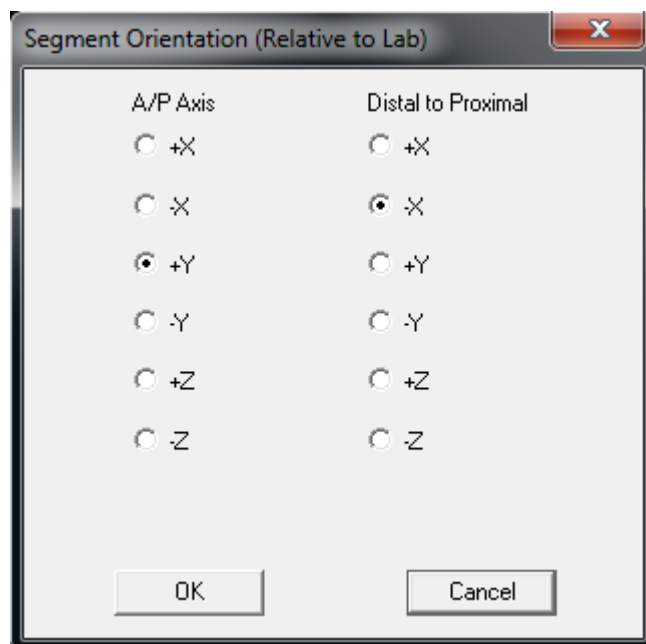
1. Click **Landmarks** button
2. Click **Add New Landmark** button
3. Create Landmark: RFT_DIST
 - **Landmark Name:** RFT_DIST
 - **Define Orientation Using:**
 - **Starting Point:** RFCC
 - **Ending Point:** RFM5
 - **Lateral Object:** RFM1
 - **Project From:** RFM2
4. **Do NOT Check:** Offset by Percent (1.0 = 100%)
5. **Check:** Calibration Only Landmark

Kinematic Foot Definition

16. Create Right Virtual Foot:

1. In the **Segments** tab, type *Right Virtual Foot* into the Segment Name box
2. Check the **Kinematic Only** Check Box
3. Click on the **Create Segment** button
4. In the **Right Virtual Foot** tab, enter these values:
 - **Define Proximal Joint and Radius**
 - **Lateral:** None **Joint:** RFCC **Medial:** None
 - **Radius:** 0.01
 - **Define Distal Joint Radius**
 - **Lateral:** RFM5 **Joint:** RFT_DIST **Medial:** None
 - **Select Tracking Targets:**
 - RFCC, RFM1, RFM2, RFM5

17. Modify the Segment Coordinate System:

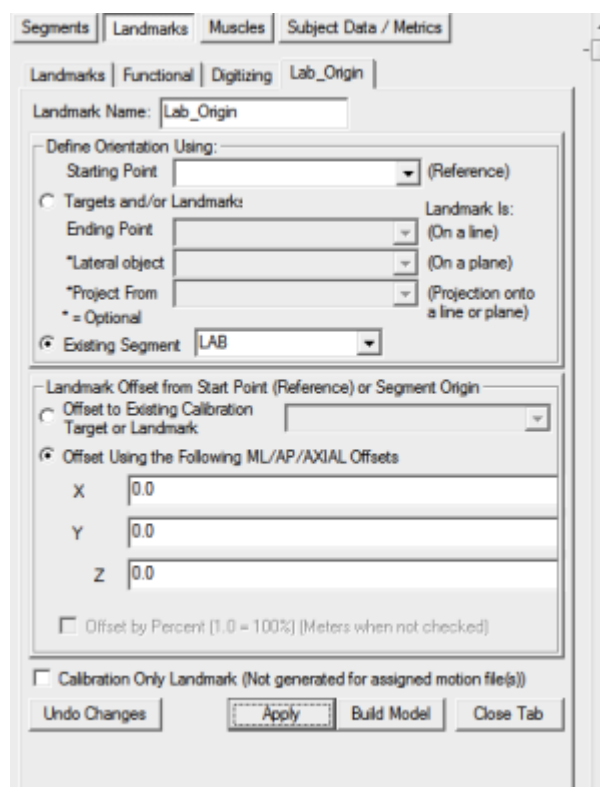


- Define the Segment Orientation as:
 - A/P Axis:** +Y
 - Distal to Proximal:** -X

Virtual Lab

Virtual Lab Landmarks

18. Create Lab_Origin:



1. Click **Landmarks** button
2. Click **Add New Landmark** button
3. Create Landmark: Lab_Origin
 - **Landmark Name:** Lab_Origin
4. Offset Using the Following **ML/AP/AXIAL** Offsets:
 - **X:** 0.0 **Y:** 0.0 **Z:** 0.0
5. **Do NOT Check:** Offset by Percent (1.0 = 100%)
6. **Do NOT Check:** Calibration Only Landmark

19. Create Lab_AX:

Segments | Landmarks | Muscles | Subject Data / Metrics

Landmarks | Functional | Digitizing | Lab_AX

Landmark Name: Lab_AX

Define Orientation Using:

Starting Point: (Reference)

Targets and/or Landmark:

Ending Point: (On a line)

*Lateral object: (On a plane)

*Project From: (Projection onto a line or plane)

* = Optional

Existing Segment: LAB

Landmark Offset from Start Point (Reference) or Segment Origin

Offset to Existing Calibration Target or Landmark:

Offset Using the Following ML/AP/AXIAL Offsets

X: 0.0

Y: 0.0

Z: 0.1

☐ Offset by Percent (1.0 = 100%) (Meters when not checked)

☐ Calibration Only Landmark (Not generated for assigned motion file(s))

Undo Changes Apply Build Model Close Tab

1. Click **Landmarks** button
2. Click **Add New Landmark** button
3. Create Landmark: Lab_Origin
 - **Landmark Name:** Lab_AX
4. Offset Using the Following **ML/AP/AXIAL** Offsets:
 - **X:** 0.0 **Y:** 0.0 **Z:** 0.1
5. **Do NOT Check:** Offset by Percent (1.0 = 100%)
6. **Do NOT Check:** Calibration Only Landmark

20. Create Lab_ML:

The screenshot shows the 'Lab_ML' configuration window. The 'Landmarks' tab is active. The 'Landmark Name' is 'Lab_ML'. Under 'Define Orientation Using:', 'Starting Point' is set to '(Reference)'. 'Targets and/or Landmark:' is set to 'Ending Point' (On a line). '*Lateral object' is set to '(On a plane)'. '*Project From' is set to '(Projection onto a line or plane)'. '* = Optional'. 'Existing Segment' is set to 'LAB'. Under 'Landmark Offset from Start Point (Reference) or Segment Origin', 'Offset to Existing Calibration Target or Landmark' is set to '(Reference)'. 'Offset Using the Following ML/AP/AXIAL Offsets' is checked, with X: 0.1, Y: 0.0, and Z: 0.0. 'Offset by Percent (1.0 = 100%) (Meters when not checked)' is unchecked. 'Calibration Only Landmark (Not generated for assigned motion file(s))' is unchecked. Buttons at the bottom are 'Undo Changes', 'Apply', 'Build Model', and 'Close Tab'.

1. Click **Landmarks** button
2. Click **Add New Landmark** button
3. Create Landmark: Lab_ML
 - **Landmark Name:** Lab_ML
4. Offset Using the Following **ML/AP/AXIAL** Offsets:
 - **X:** 0.1 **Y:** 0.0 **Z:** 0.0
5. **Do NOT Check:** Offset by Percent (1.0 = 100%)
6. **Do NOT Check:** Calibration Only Landmark

21. Create Pel_ML:

Segments | Landmarks | Muscles | Subject Data / Metrics

Landmarks | Functional | Digitizing | Pel_ML

Landmark Name: Pel_ML

Define Orientation Using:

Starting Point: Lab_Origin (Reference)

Targets and/or Landmark:

Ending Point: (On a line)

*Lateral object: (On a plane)

*Project From: (Projection onto a line or plane)

* = Optional

Existing Segment: Pelvis

Landmark Offset from Start Point (Reference) or Segment Origin:

Offset to Existing Calibration Target or Landmark:

Offset Using the Following ML/AP/AXIAL Offsets

ML: 0.1

AP: 0.0

AXIAL: 0.0

Offset by Percent (1.0 = 100%) (Meters when not checked)

Calibration Only Landmark (Not generated for assigned motion file(s))

Undo Changes Apply Build Model Close Tab

1. Click **Landmarks** button
2. Click **Add New Landmark** button
3. Create Landmark: Pel_ML
 - **Landmark Name** Pel_ML
 - **Define Orientation Using:**
 - **Starting Point:** Lab_Origin
 - **Existing Segment:** Pelvis
4. Offset Using the Following **ML/AP/AXIAL** Offsets:
 - **X:** 0.1 **Y:** 0.0 **Z:** 0.0
5. **Do NOT Check:** Offset by Percent (1.0 = 100%)
6. **Do NOT Check:** Calibration Only Landmark

22. Create Pel_ML_Proj:

The screenshot shows the 'Landmarks' tab in the Visual3D software. The 'Landmark Name' is 'Pel_ML_Proj'. Under 'Define Orientation Using:', 'Starting Point' is 'Lab_Origin' (Reference). 'Targets and/or Landmark:' is selected, with 'Ending Point' as 'Lab_ML' (On a line), '*Lateral object' as an empty field (On a plane), and '*Project From' as 'Pel_ML' (Projection onto a line or plane). '* = Optional'. 'Existing Segment' is an empty field. Under 'Landmark Offset from Start Point (Reference) or Segment Origin', 'Offset to Existing Calibration Target or Landmark' is an empty field. 'Offset Using the Following ML/AP/AXIAL Offsets' has three empty input fields for ML, AP, and AXIAL. 'Offset by Percent (1.0 = 100%) (Meters when not checked)' is unchecked. 'Calibration Only Landmark (Not generated for assigned motion file(s))' is unchecked. Buttons at the bottom are 'Undo Changes', 'Apply', 'Build Model', and 'Close Tab'.

1. Click **Landmarks** button
2. Click **Add New Landmark** button
3. Create Landmark: Pel_ML_Proj
 - **Landmark Name:** Pel_ML_Proj
 - **Define Orientation Using:**
 - **Starting Point:** Lab_Origin
 - **Ending Point:** Lab_ML
 - **Project Point:** Pel_ML
4. **Do NOT Check:** Offset by Percent (1.0 = 100%)
5. **Do NOT Check:** Calibration Only Landmark

23. Create VLab_ML:

1. Click **Landmarks** button
2. Click **Add New Landmark** button
3. Create Landmark: VLab_ML
 - **Landmark Name:** VLab_ML
 - **Define Orientation Using:**
 - **Starting Point:** Lab_Origin
 - **Ending Point:** Pel_ML_Proj
4. Offset Using the Following **ML/AP/AXIAL** Offsets:
 - **AXIAL:** 0.1
5. **Do NOT Check:** Offset by Percent (1.0 = 100%)
6. **Do NOT Check:** Calibration Only Landmark

Additional Details

Once the IOR Gait Full Body model has been created, additional items can be calculated specific to the IOR Gait model.

Planar Angles: Compute the orientation of different parts of the thorax relative to one another.

Shoulder Orientation and Translation: This tutorial goes through computing the orientation and the translation of the shoulder targets relative to the trunk segment.

Joint Angles: Compute IOR Gait specific joint angles. **IOR Multi-Segment Foot Model:** Define a multi segment foot model.

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