## **Initial Poses and Tracking Settings Manual**

- 1. Complete capture of movements
- 2. Open Simi Shape
- 3. Select a trial for a new athlete in the 'Simi Motion project' box.

Shape Starter	
Data	Model
Simi Motion project	Model path
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	Open Cancel

4. Choose the correct Track settings based on athlete pitch hand in D:/Settings folder.

Data		Model			
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5. Select the default initial pose for the proper exercise and side (left or right) if applicable, in D:/InitialPoses.



6. Click 'OK' to Open Shape

Shape Starter	
Data Simi Motion project [_Alec Miller_CMJ\2024011813224752_002_1_Alec Miller_CMJ.smp []] Shape settings D:\Settings\track_R.shp []] Initial pose D:\UnitialPoses\default_init_CMJ.shpdata []] Marker data []] []]	Model Model path C:\Program Files\Simi\Shape 5.1.0\data\body_models\human_v4 female left @ male @ right Video scale 100% Ignore video rotation
AI configuration           C:\ProgramData\Simi\Shape\5.1.0\SimiNet-General-accurate.shape	Import annotations OK Cancel

7. Using the lower slide bar, find the frame of video when the athlete matches closest to the loaded initial pose.



8. Go to [Edit > Scale Box] to be able to change the model's height.



题 Simi Shape - D:\Archived Sessions\Files\20231130\15212897\_S3D\2023113015222261\_003\_1\_Alec Miller\_CMJ\2023113015222261\_

9. Type the athlete's height in meters into the 'Set model scale to size [m]:' box and hit Enter on the keyboard to lock in that size. Then exit out of the Scale box window.

5 Scale box					_	
Joint scaling			Seg	ment o	deforr	nation
Root Pelvis Hip, left shift Hip, left Knee, left	1.00 0.90 1.00 1.05 1.00	0.00	0.00	0.00	0.00	X+ direction Sync
Ankle, left Midfoot, left Hip, right shift Knee, right Ankle, right	1.00 1.00 1.05 1.00 1.00	0.00	0.00	0.00	0.00	X- direction Sync
Midtoot, right Torso Spine, low Spine, high Shoulder, left shift Shoulder, left	1.00 1.00 1.00 1.00 1.00 0.95	0.00	0.00	0.00	0.00	Z+ direction Sync
Elbow, left Wrist, left Shoulder right shiff	1.00 1.00 1.00 ▼	0.00	0.00	0.00	0.00	Z- direction Sync
Adopt scale from mirr Set model scale to size [m]:	or 1.69	Add	opt de	forma	ition f	rom mirror
Reset: Current joint	All joints	Currer	nt seg	iment	A	Il segments

10. Click Image Processing or Segmentation (depending on shape version the button label may be different) on the left-hand side to open the segmentation box. Choose the drop-down menu and select 'Background subtraction'. Adjust the Angle, Upper, and Lower sliding bars to optimize the silhouette of the athlete. The goal is to eliminate background and maximize the picture of only the athlete.



11. Complete Step 10 above for each camera view by selecting the drop-down menu and choosing the next camera. You can also right-click on a camera view to open that view in the segmentation box. Once all camera views are optimized, exit out of the window.

Background subtraction	\$	Camera: Camera 3 (Camera	3) 4
Enable background subtraction	1		
Angle: 0.04	_		
Upper: 62	-		
Lower: 11	-		en la
Initial erode iterations: 1	\$		
Dilate iterations: 2	-		
Final erode iterations: 1	-	1	
Apply settings to all cameras			
Use silhouette mask (tracking of the second seco	only)		
Silhouette dilations: 15			

12. Save the Settings by going to [Settings > Save settings...] and overwrite the existing settings file.





13. Click the Optimize Pose button many times until the model falls into the silhouette of the athlete. In case an extremity or segment will not automatically fit the silhouette, use the following hot keys to move the segment near the correct location and hit Optimize Pose many more times until the model adheres to the silhouette.



Hold Alt, Right Click on a segment and hold the Right Click  $\rightarrow$  Allows you to rotate the highlighted segment around its' axis.

Hold Shift, Left Click and Hold on a segment  $\rightarrow$  Allows you to move the highlighted segment in the transverse plane.

Hold Shift, Middle Click (press in the scroll wheel) and Hold on a segment  $\rightarrow$  Allows you to move the segment in the frontal plane.

Hold Shift, Right Click and Hold on a segment  $\rightarrow$  Allows to move the highlighted segment in the sagittal plane.

14. Once the model matches the athlete, save the model as an initial pose. Go to [File > Save as initial pose...]. Change the filename to match the format in your initial pose folder, 'Name\_init.shpdata' and Click OK. Click NO on the following window.





15. Go to [Settings > Load settings], as previously we loaded track\_R.shp settings, we will also want to optimize background segmentation for init\_R.shp settings.



55 Simi Shape - D:\Archived Sessions\Files\20231130\15212897\_S3D\2023113015222261\_003\_1\_Alec Miller\_CMJ\2023113015222261\_003\_1\_Alec Miller\_CMJ.smp

16. Complete steps 10-12 again for the init\_R.shp settings and overwrite the settings file.

熨 Load se	ettings						×
Show:	Shape se	ettings (*.shp)	\$	Favorites			٤
/ Simi Alte Right Go init.shp init_L.sh init_R.sh track.shp track_L.s track_R.	p p shp shp	Settings/ e.shp					
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17. Exit out of Shape and Quit without saving by unchecking the boxes next to Save Simi Motion Project, Save Model Data and Save Settings.

Edit <u>T</u> racking ⊻iew	<u>Settings</u> Info	
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Tracking options	Save Simi Motion Project (.smp)	Save model data (.shpdata)
Initialization	Shape, 1/30/2024, 11:01:59 AM Export joint positions Export joint rotations	Save Al-annotations
Optimize pose	@ Evport inverse kinematics	laund C C C
Start tracking	Export 2D joint positions	
Track backwards	Check joint occlusion	
Initialization tracking Refine tracking	Use Al-annotations for 2D export	
Stop at bounds Silhouette view	Save	Cancel
Simulate tracking		