MOCAP Cleanup Tool README

Tool Usage Tutorial/Breakdown
Tool Installation Tutorial

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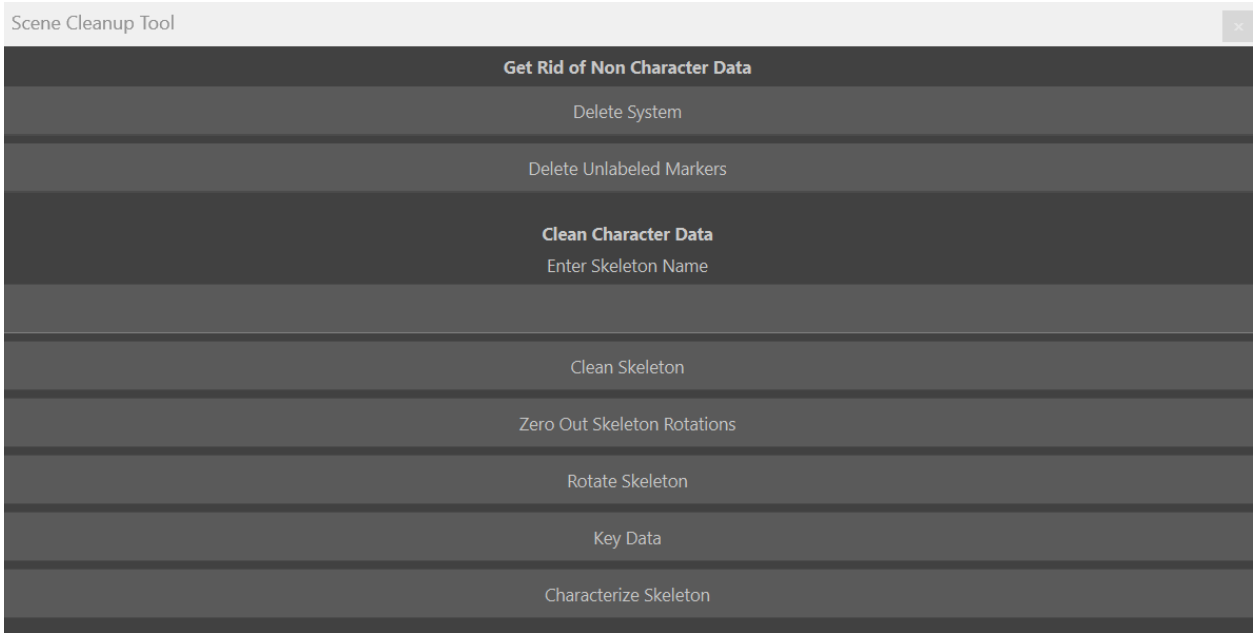
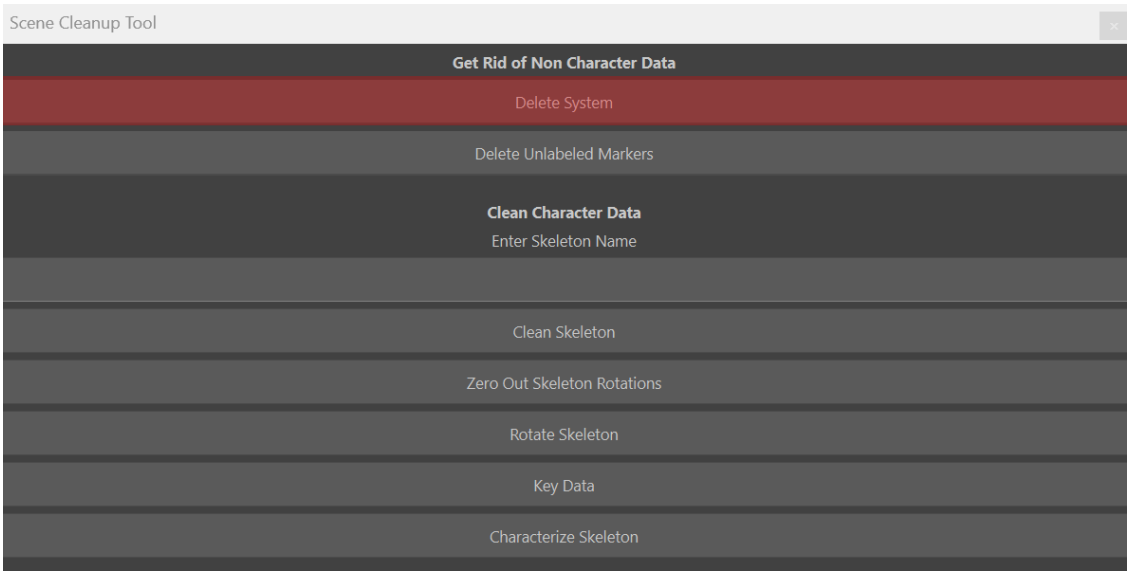
It was recently requested by an Animator friend of mine to develop a tool that speeds up and automates the cleanup and characterization of raw motion capture data that is brought into Motionbuilder. I took it upon myself to learn how to code within Motionbuilder's Python libraries to develop this tool for a project I am on with this friend and colleague of mine and have developed a tool that does what she has requested.

The tool is split up into two sections, Non-Character and Character data.

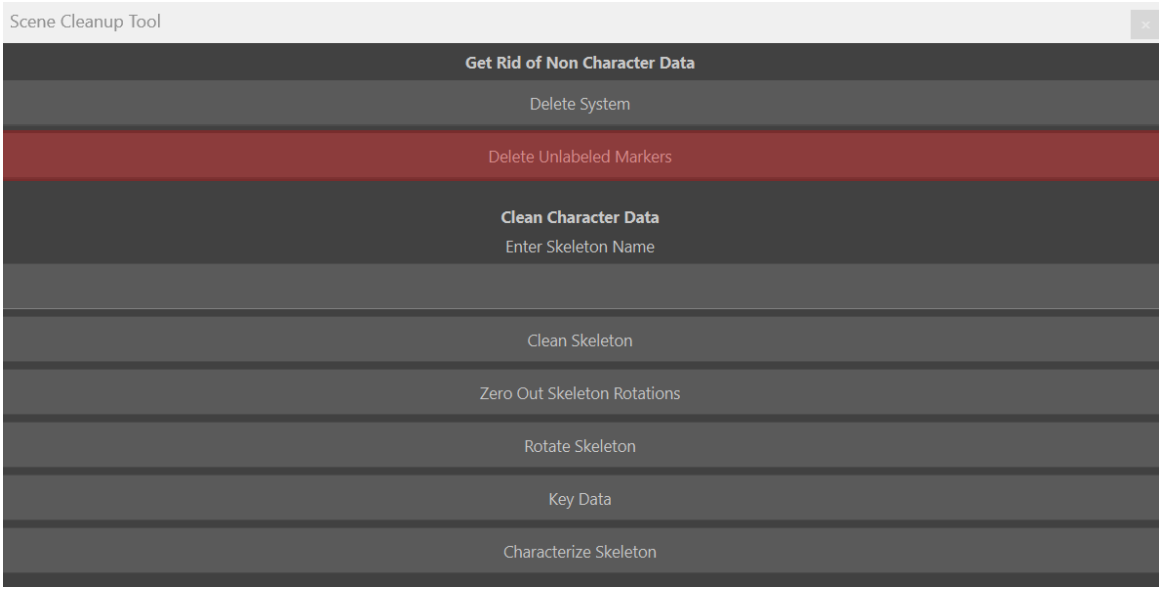


Non Character Data:

The Non Character Data section is as easy as it looks to utilize. It is split up into two buttons you can press in any order. The first button named “Delete System” will delete the system of cameras from the scene upon pressing the button.

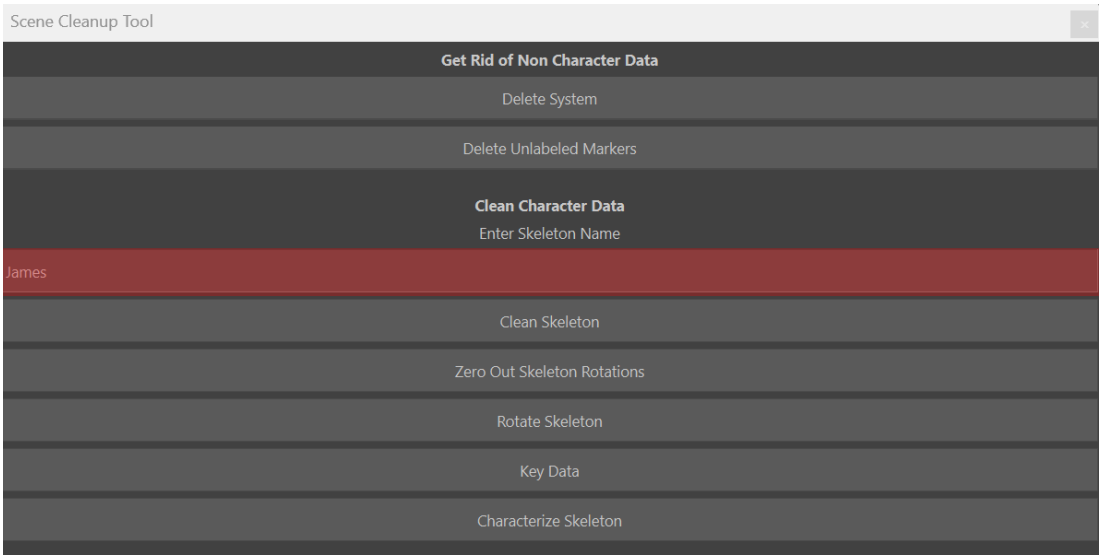


The “Delete Unlabeled Markers” button will delete any marker parented under “Unlabeled Markers” upon pressing the button. After pressing these buttons you have successfully deleted all non character data!

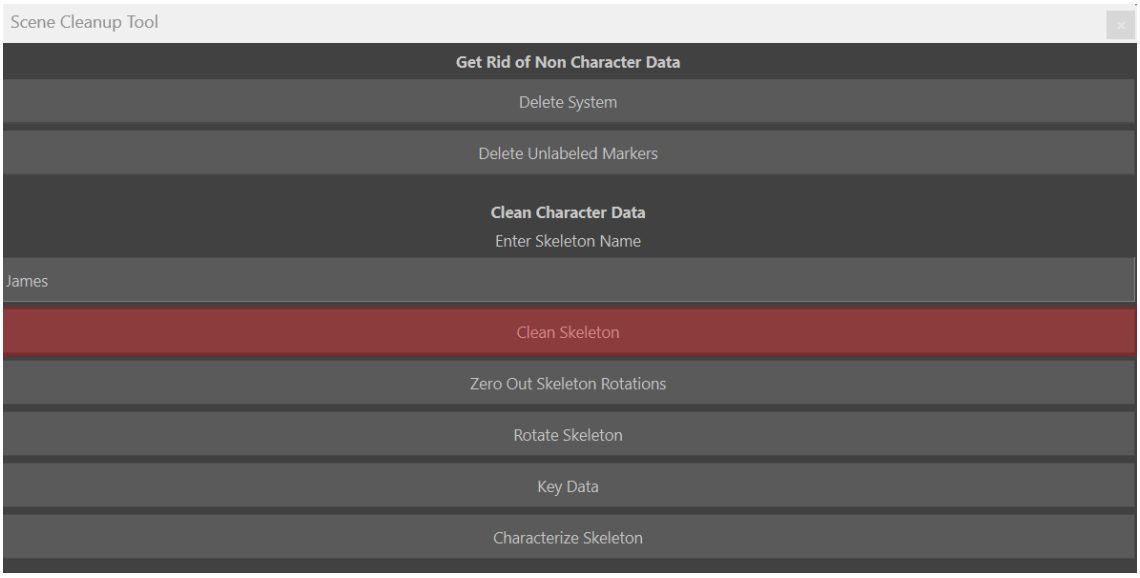


Character Data:

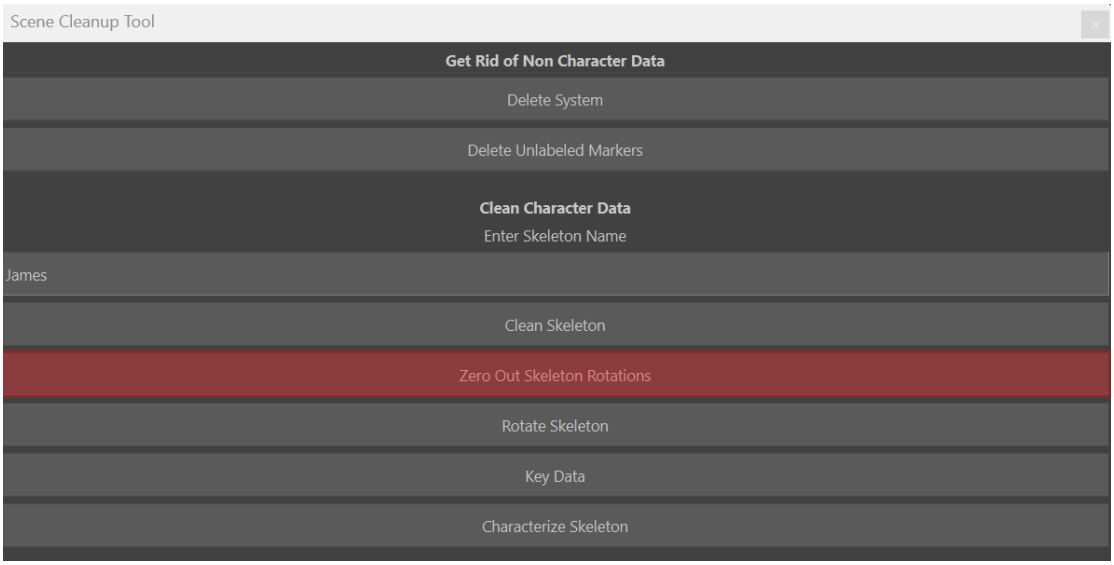
The Character Data section is where most of the time will be spent in this tool. In order to properly utilize the Character Data section you must first enter the name of the root for a skeleton in your scene. If you don't know where to find it, click on a joint in the scene and look for the prefix of the joint, or click Ctrl+W to go into the graph editor to look for the root name.



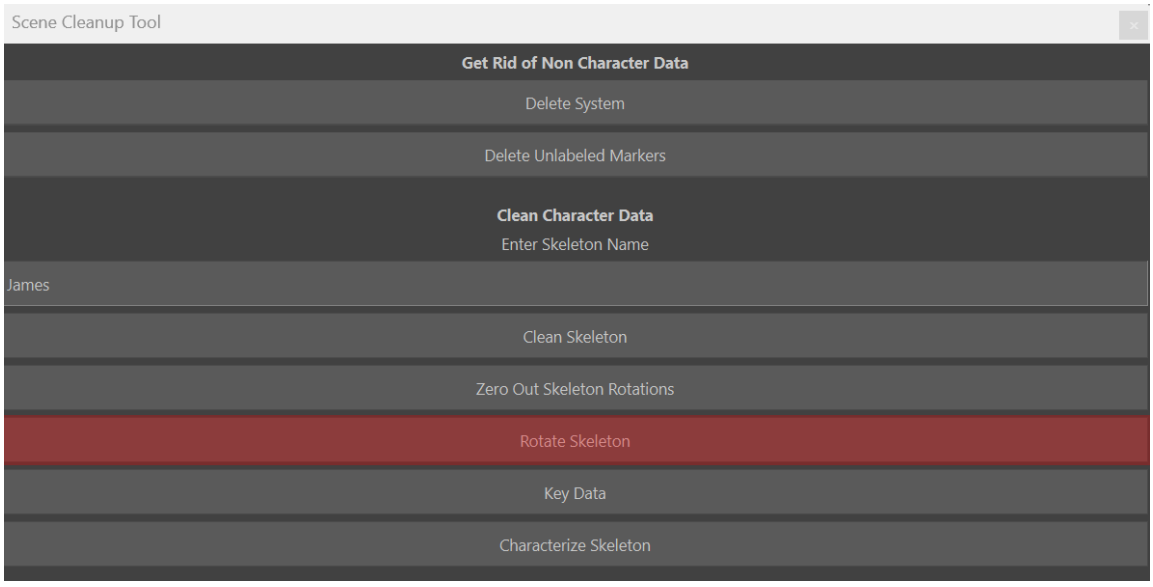
Once the skeleton's root name is properly typed in, you can then start utilizing the buttons below. Although you can technically press any button at any order you wish depending on your needs for a scene, it has been best utilized by pressing from top to bottom for each button. First thing you'd want to do is press the "Clean Skeleton" button.



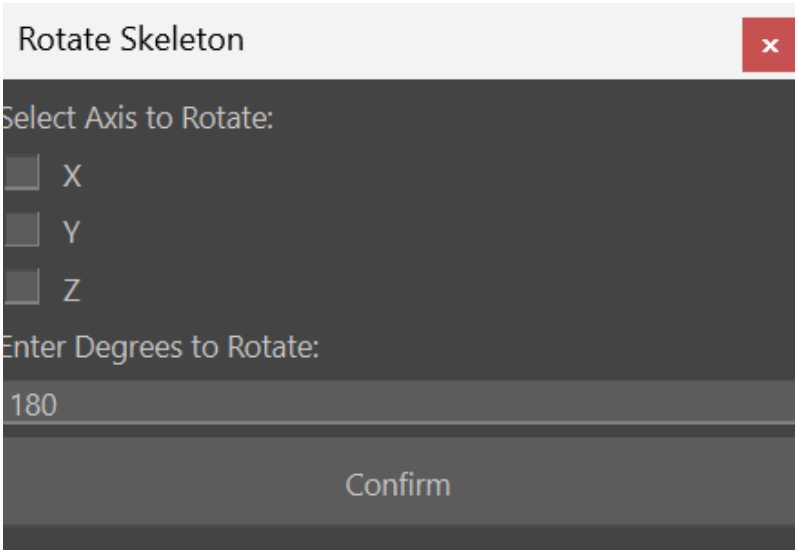
After this, your skeleton should now be fully cleaned up leaving only the bones and joints recorded from the motion capture data. However, in order to properly characterize the skeleton, you'll need to make sure your skeleton is zeroed out and keyed at frame one. To start this process press the "Zero Out Skeleton Rotations" button.



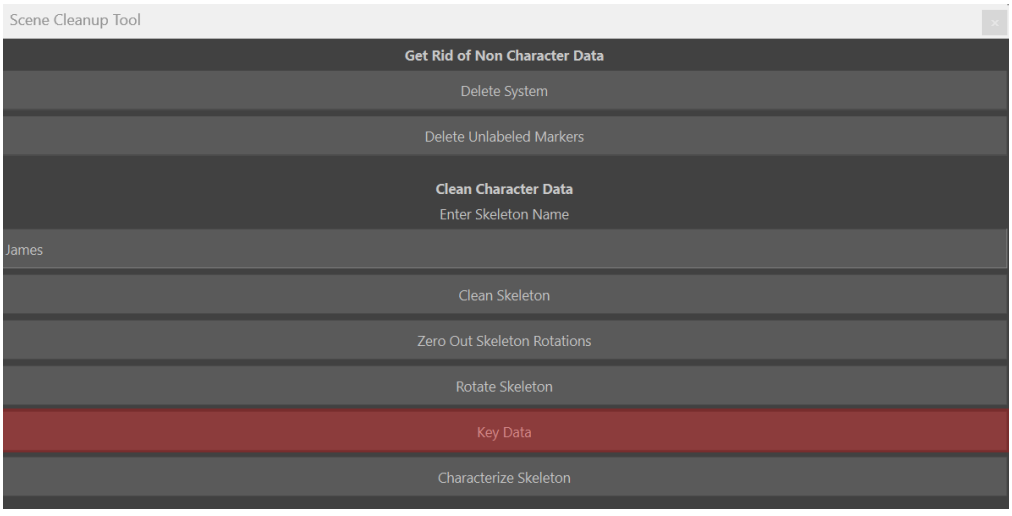
This next step may not be necessary for you depending on how your scene was recorded. However in most cases for the motion capture data my team records, when zeroing out the rotations the skeleton ends up facing the opposite direction it's supposed to. This led me to implementing a "Rotate Skeleton" button which will rotate the "Hips" joint of your skeleton upon an axis and degree in which you specify. In order to have the option to do this, first click the "Rotate Skeleton" button.



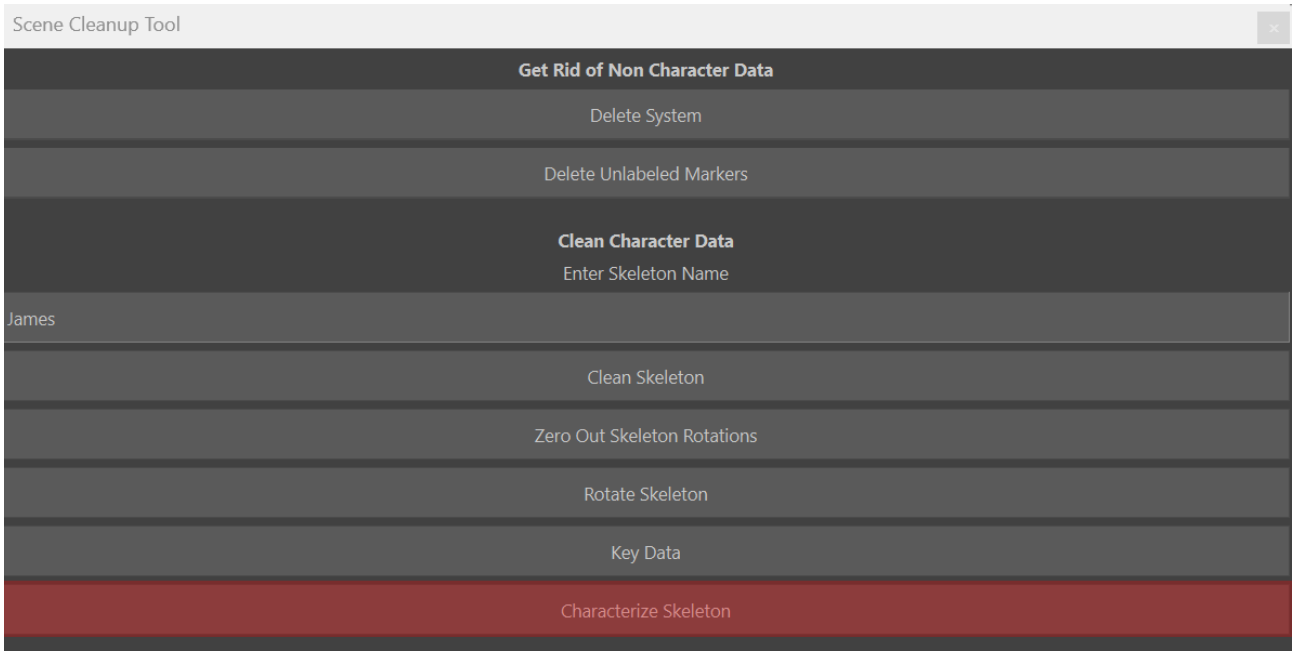
Upon clicking the “Rotate Skeleton” button, a new mini GUI will appear named “Rotate Skeleton” It will give you the option to rotate the skeleton you’ve been cleaning up to any degree you specify with the bottom text box across the X Y or Z axis. You can also rotate the skeleton across more than one axis at a time if you so desire. If your skeleton is lying down you generally would want to rotate it across the X axis. If your skeleton is lying on its side, you’d want to rotate it across the Y axis. If your skeleton is upright but looking the wrong direction, you’d want to rotate it across the Z direction. I know the most common use case of my tool so far has been rotating it 180 degrees across the Z axis, but this will vary depending on the scene. Simply press the confirm button when you’ve specified what you want in order to implement the functionality.



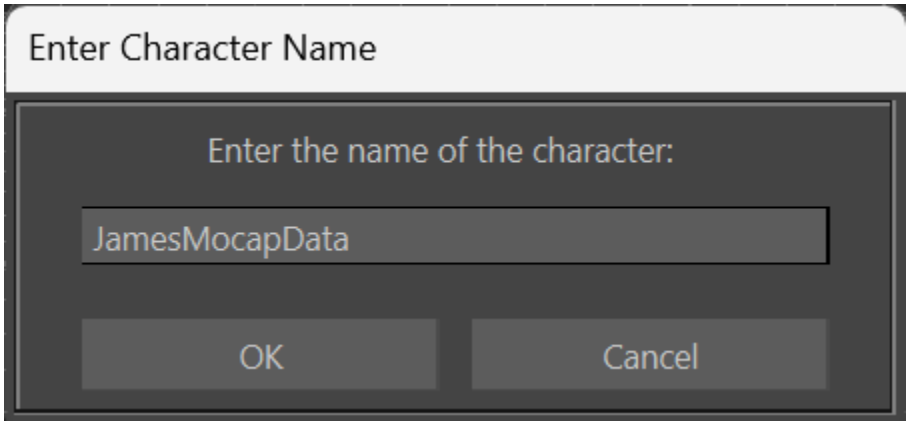
Once your skeleton is properly oriented and zeroed out, you want to make sure you key the joints all at frame 1 in order for characterization to properly function. You can achieve this by simply pressing the “Key Data” button and it will key your skeleton at frame 1.



After your data is keyed and cleaned, you're ready to characterize! To start the characterization process simply click the "Characterize Skeleton" button.



Once you have done this, a pop up will appear asking you to name the character for your skeleton. Make sure to input a unique name that is recognizable and then press "OK."



After you have done this, your skeleton should be fully characterized and cleaned. Repeat the Character Data process for any skeleton you have in the scene. Once you've done this for every skeleton in your scene, you have successfully cleaned and characterized your file!

Closing Remarks:

This tool is primarily meant to speed up the process of animators/technical animators' ability to clean up and polish high quality motion captured data. Although cleaning up a motion captured scene takes about 5-10 minutes manually, reducing that to 10-30 seconds per scene for hundreds of scenes adds up quickly. This tool has already been used and utilized by many animators on my project with me and I'm hopeful many more animators will make use of this tool in the future. If you run into any issues with this tool or have any questions please see below on how to contact me!

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