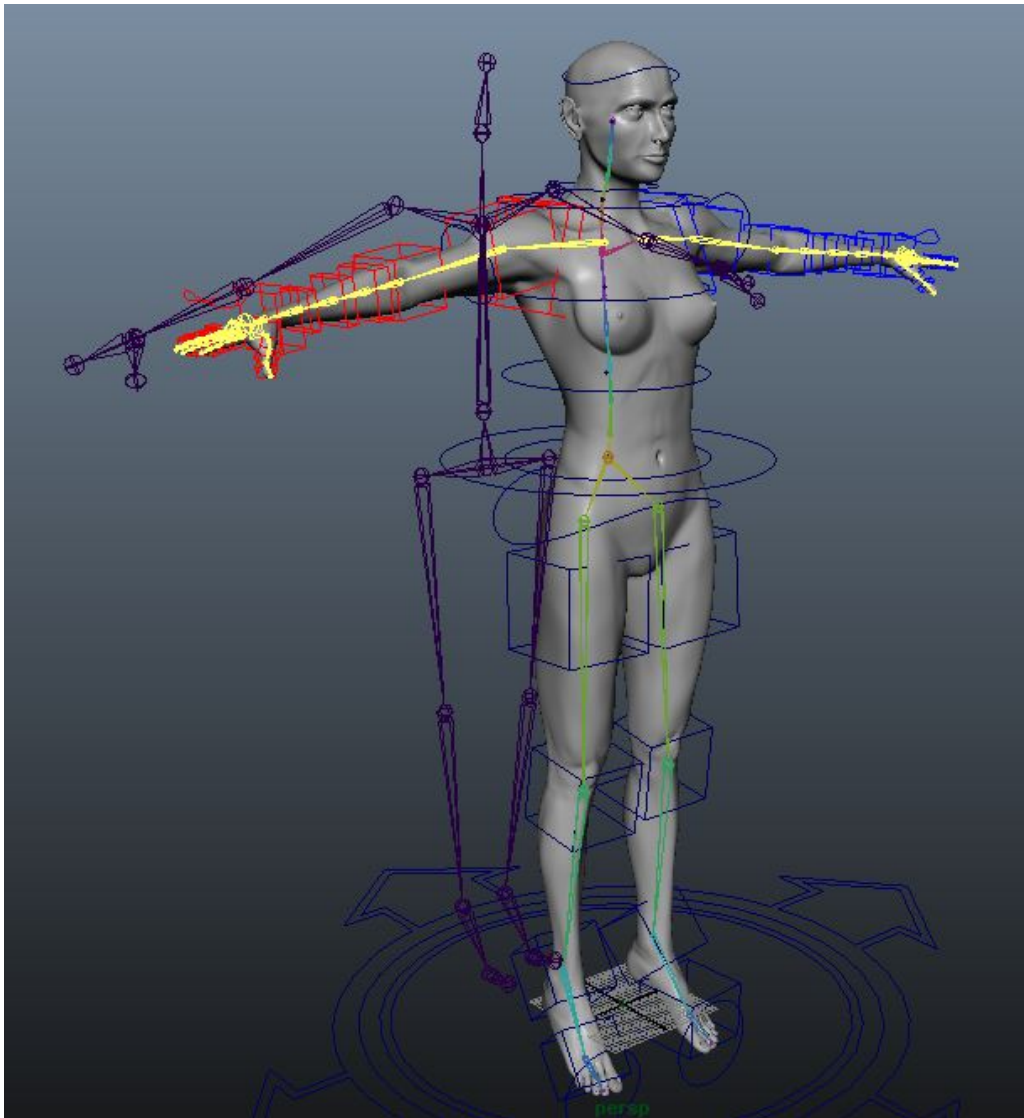


Bringing Motion Capture Data in Maya and Applying to a Custom Rig

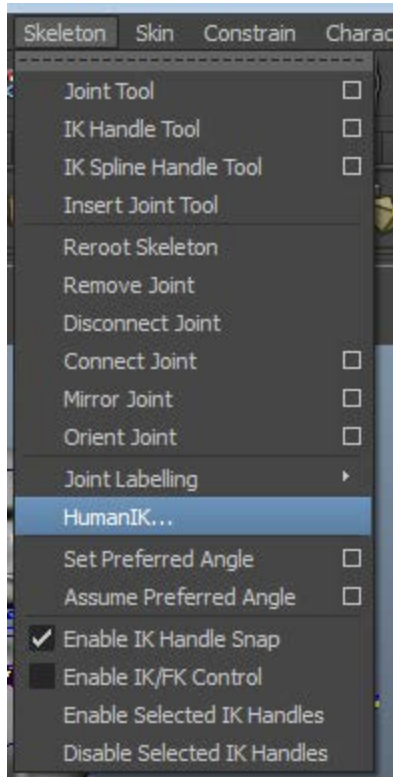
This tutorial will explain how to take the motion capture from Blade 2.0 and apply it to a custom character rig for further animation in Maya using HumanIK(HIK).

To start you will need a fully rigged and skinned mesh. The actual type of rig does not matter, IK/FK switching does play a part but not until you are actually animating. Open your rigged character and import the motion capture FBX files into the scene.

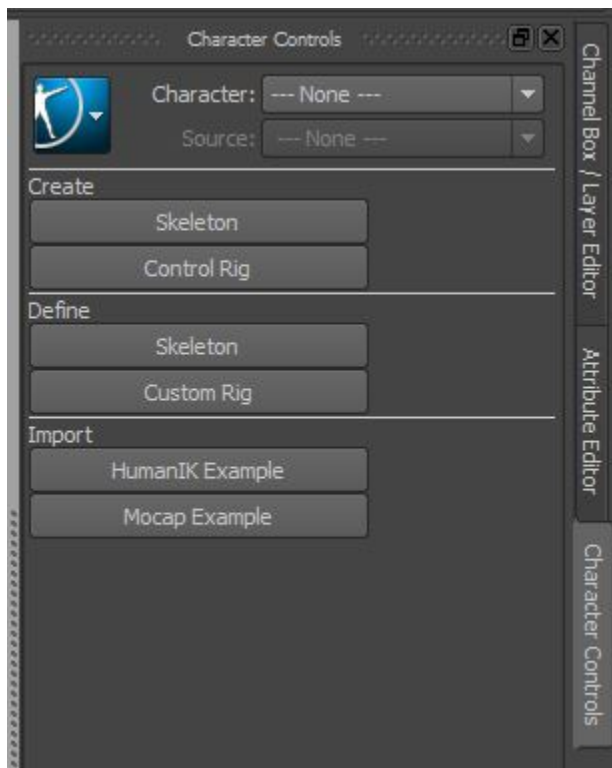
Do not worry if your mocap skeleton is much larger than your rigged character. Only the rotational information really matters. But modeling and rigging to the same scale is very beneficial as you can directly overlay your character's skeleton and the mocap skeleton.



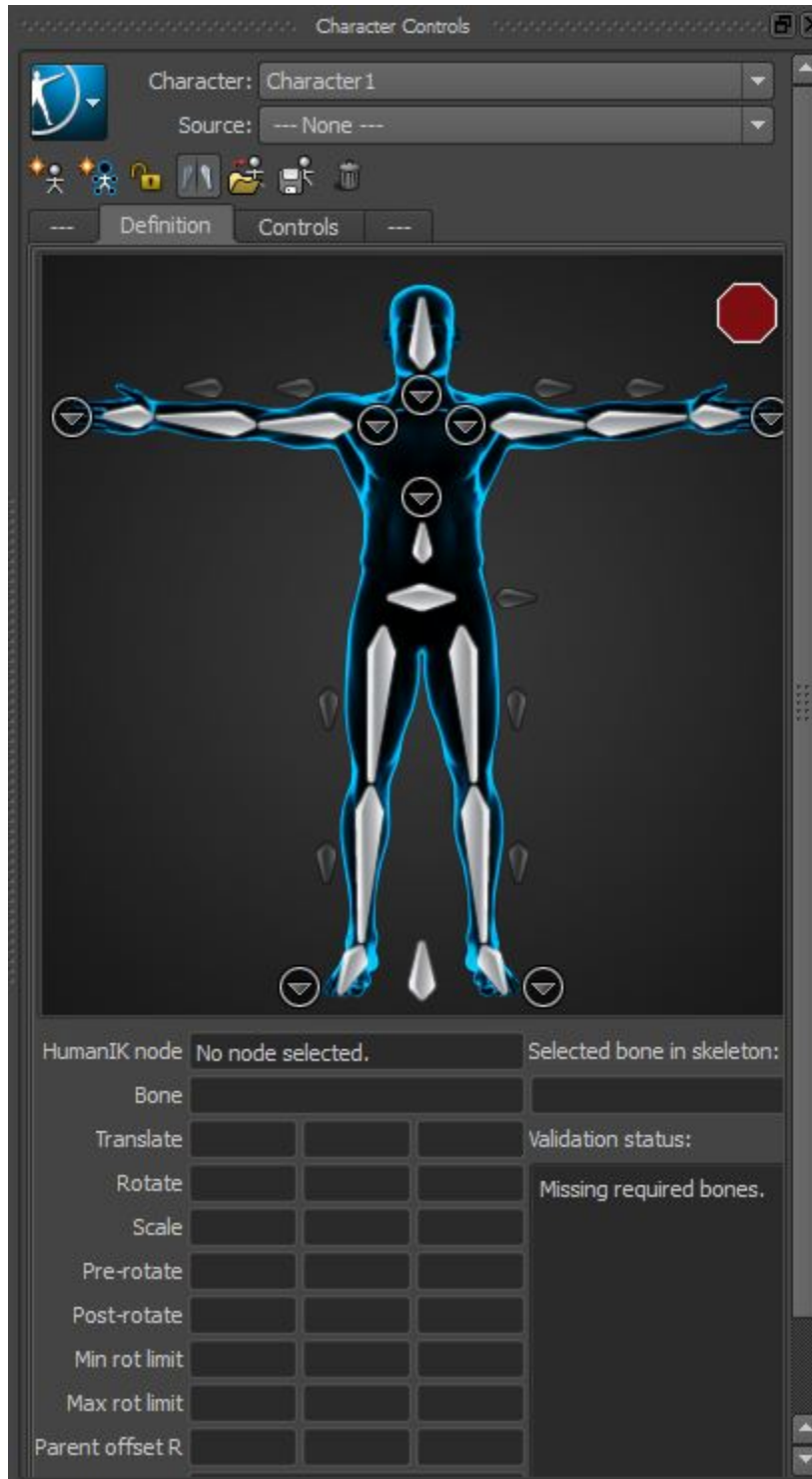
Next, while in the Animation context, go to skeleton and open the HumanIK tool, it may take a second to load.



You should now see that Human IK has docked on the right with the Channel Box and Attribute Editor.



Since we already have both skeletons you can ignore the create and import, you just need to define the characters. First define the mocap skeleton. Click skeleton under define, this panel should open:



To define the skeleton manually double click the white bones in the diagram shown and then single click on the corresponding bone. You can click on the circled arrows to expand into other bones if necessary.

It is important to add the “shoulder” or “clavicle” (depending on your naming convention) to the arrow and the “uparm” to the bicep area. It is also important to put the foot or toe in the arrow section on the foot. If you used a production skeleton in Blade there will be the extra spine joints to use, this may yield better results if using a complex spine rig.

Luckily Blade has already named the skeleton for you! While I recommend doing it manually as a beginner, you can auto define the skeleton. First map the root or hips joint to the HIK using the steps outlined above. Now find the icon of the folder with the character in it and click it. The load skeleton definition window pops up. If you leave the template set to HIK and match all bones with the mocap’s prefix it will define it for you. Now to avoid confusion click the blue square button, go to edit, definition, and rename. Name it something useful.

You may have noticed that the bones light up green, and you may have noticed sometimes they are yellow. This simple means that the T-Pose is not perfect. This is usually ok and can be ignored. But it is always important to make sure your performers are as perpendicular as humanly possible.

Now repeat the steps on your custom skeleton. Click the blue box menu and go to define>skeleton. If you did not name you’re bone structure the same way as Blade did you cannot use the auto-defintion.

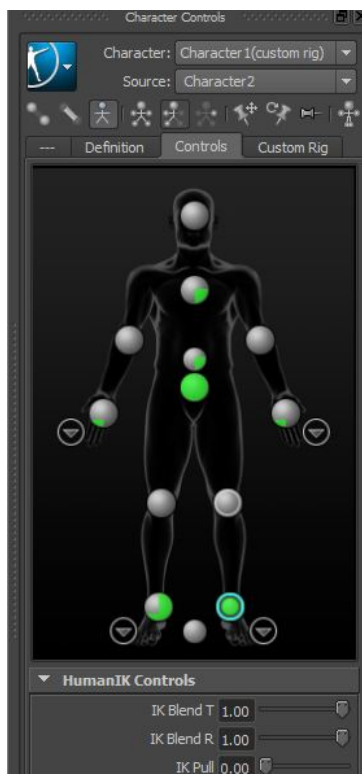
Once the custom skeleton is defined click the small button of the blue outlined character with a star above him, this will create a custom rig tab.



When first opening those sticks and circles will be grey. To add controls to HIK first select them in the viewport. Next right click on the corresponding circle or stick. Certain joints are a circle and a stick. It's a little confusing. You can do this with either FK or IK controls. FK usually works better, but it is a little bit of trial and error and a little bit animation preference. You can map translation and rotation. Translation would be for IK and rotation would be for FK but sometimes it is both. Again trial and error, sorry.

Once you have all three definitions done (remember to name your custom rig) simply go to the source drop down in while the character is set to custom rig and select the mocap character. Scrub along the timeline to see if it worked. If it didn't try going to the controls tab in HIK. Click on the circles and you can play around with the IK Pull and Blend of joints. I really don't know what it means by IK, it seems to be pulling it closer or further from the mocap skeleton. If everything went well awesome. You can play with some more settings and if you want lay your character directly on top of the mocap by going to the Blue box>Edit>Definition>Edit Properties. Properties are actually the HIK node attributes. Match Source will place your root exactly on the mocap root.

It is also important to note that under Source, 'none' doesn't do anything once you've picked the mocap as source. If you want to return your rig to its original spot select 'Stance.'



Now that the mocap is flawlessly added to the custom rig you will need to bake it out to be able to animate on top of it. Click on Smart Bake so Maya doesn't bake on literally every frame. You may have to still go through and simplify some curves in the graph editor. Click the Blue box>Bake>Bake to Custom Rig. This will simulate the whole animation so take a bathroom or Twitter break.

Now if you click on the Channel Box and go to the Anim tab at the bottom you will see a BaseAnimation layer was added. To add or fix parts of the animation you will need to use more layers. Decide what animation you want to fix, try to split up layers by limbs or something logical rather than giving each controller its own layer. Select the controllers and click on the far right button in the animation layer tab, it's a piece of paper with a ball and star sitting on it. This adds them to the layer.

Find the area you wish to fix. On the first and last frame of the problem area click the button with the Key and the number one. This keys the animation weight to that layer. You can alternatively use the weight slider and the K button next to it to key other weights to blend and feather the animations together. A weight of one is best used to solve large problems or clipping issues.

When the animation is complete save out a copy of the file to be baked down so you do not lose the layers. Select all the objects that are animated in the rig. Go to edit>keys>bake simulation. You can bake over the BaseAnimation layer and Delete Baked Channels will remove objects from layers. Remember smart bake as well. For games you can bake directly to the skeleton. Select the root joint and in the Mel Command line type Select -hi to select to entire skeleton hierarchy. Bake the same way. Since it baked to the bones you can delete the rig. This is not entirely necessary but it may be helpful for mobile games and it gives your engine one less useless node.