



mixamo

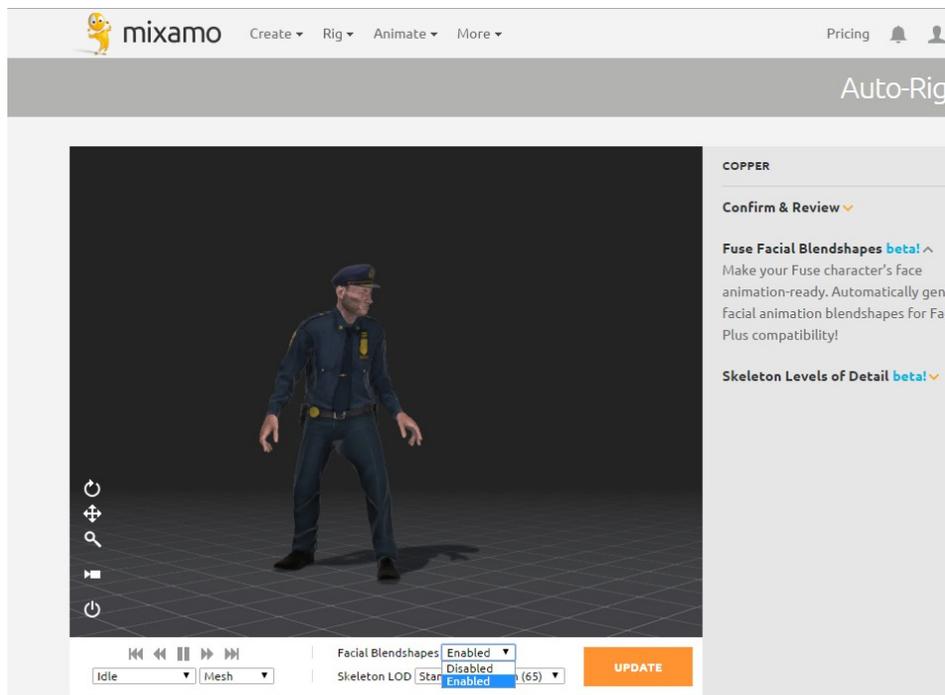
Mixamo Maya-Auto-Control-Rig[©]

The Maya-Auto-Control-Rig is a tool designed for animators to automatically rig a character for Maya and help animate it using keyframing or external sources of animation data. The tool provides a particularly seamless workflow if the source of animation data is from Mixamo. The tool requires Maya version 2009 or later.

The tool only works with characters coming from the Mixamo online auto-rigger service.

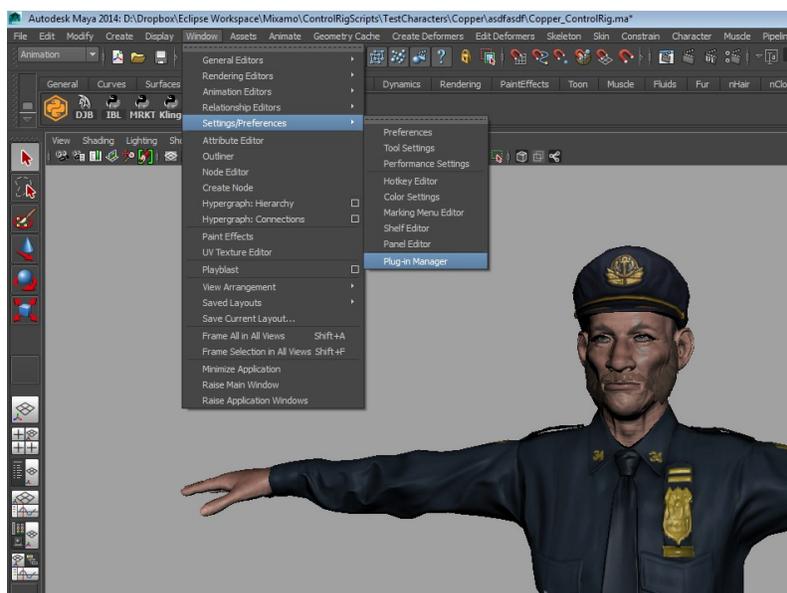
1. Getting Started:

Put your model through the [auto-rigger](#) on Mixamo.com (modeled in T-Pose or A-pose will give the best results). If you are using Fuse, be sure to add facial blendshapes at this stage:



If you want animation on your rigged character, apply a motion to it and download both the Auto-Rigged Character without animation (T-Pose is fine) and the motion separately in FBX Format.

In Maya, import your auto-rigged character with the latest version of the FBX plug-in (make sure the fbxmaya.mll plug-in is loaded **Window>Settings/Preferences>Plug-in Manager**):



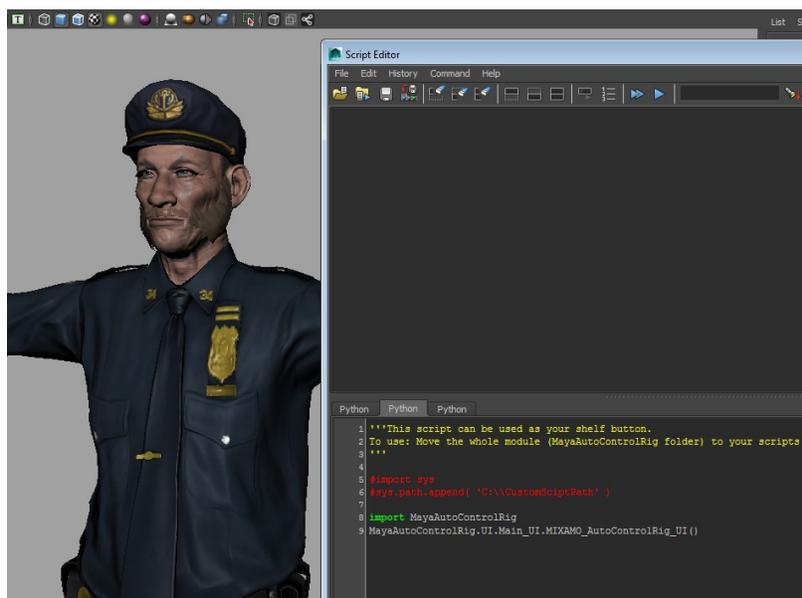
Installing the Script

Place the MayaAutoControlRig folder in your scripts directory:

C:/Users/<Username>/Documents/maya/(Version)/scripts/
/Users/Shared/Autodesk/Maya/(Version)/scripts

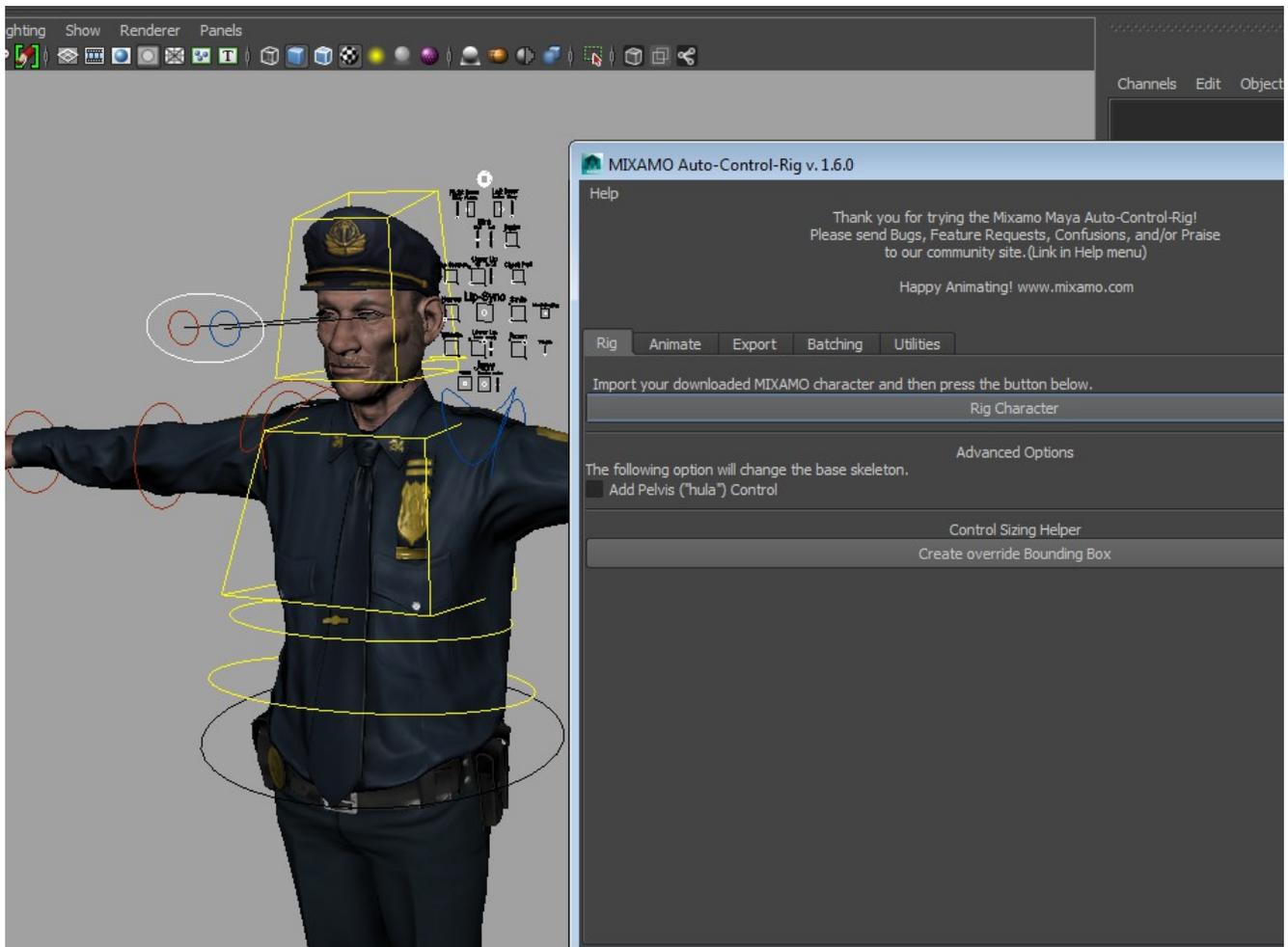
Windows
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Run the main python script (Mixamo_Auto_Control_Rig_v_1_6_0.py). You may want to make it a shelf button for easy access:



2. Rigging Your Character:

In the **Rig** tab, Press the **Rig Character** button:



*If the size of the controls are too large or small, you can use the **Create Override Bounding Box** button and scale the cube before hitting **Rig Character**. The rig is undoable, so you can undo and try a different scale if the first time doesn't work well.

You now have a fully animatable rig of your character. There are display layers and selection sets for your convenience. You may keyframe-animate normally, but the real power of the rig is its ability to use motions from Mixamo.com.

If your character has FacePlus-compatible facial blendshapes, the script will create controls for that as well.

Options:

If **Add Pelvis ("hula") Control** is checked, the skeleton will be modified to allow the inclusion of a separate hip control. This will give the animator control of the pelvis without affecting the upper body. The side effect is your new skeleton will no longer match the

original.

In the Utilities tab, there are some additional options for more advanced users. If you have added an additional skinned mesh to the rig after initial creation, use the **Remake Mesh Infonode** button.

If you wish to add your own joints to the rig and be able to use the export functionality with them, select the new joints and press the **Make Extra Joints Infonode from selection** button.

Lastly, but most awesomely, is **Make Dynamic Chain Rig from selection**. To create a dynamic joint chain (or single joint) that works with the rest of the rig's functions, first parent the skinned joint chain (or the single joint) into the main Bind Skeleton, select the base of the new chain, and then hit the button. You now have dynamics appropriate for followthrough on hair, props, etc. You can create colliders and other fanciness at your leisure. This function is powered by ZV Dynamics, written by Paolo Dominici.

*In the Batching Tab, you can find some useful features for batching the dynamics of several files at once.

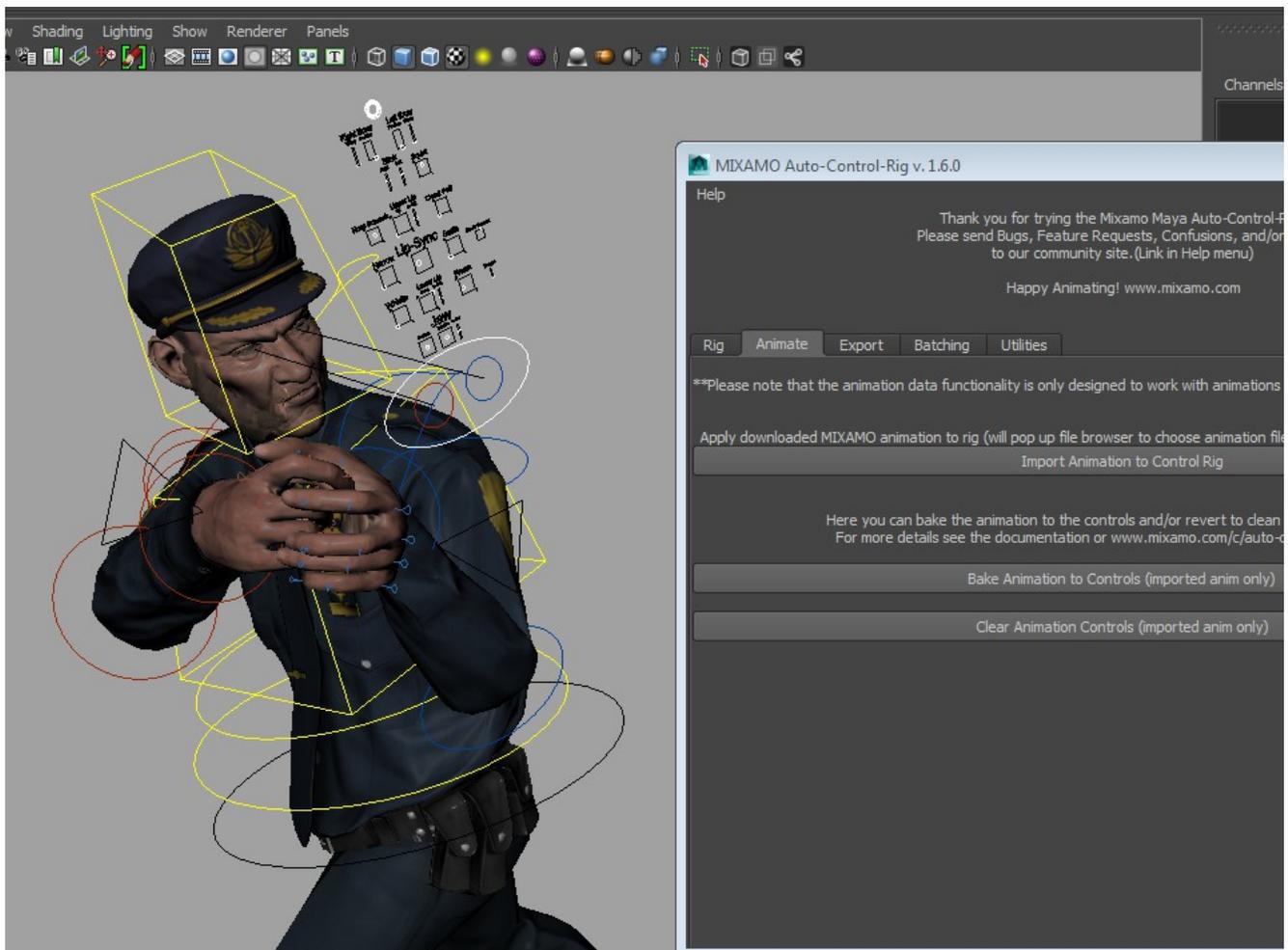
Suggested Workflow with a Pelvis Control:

Rig the character with **Add Pelvis Control** checked. Then, with **Export Mesh with Skeleton** checked, click **Export Baked Skeleton**. You will now have a clean fbx that looks like the first one you downloaded, but has the new joint hierarchy. Any animation downloaded for the original character will hook up correctly and be converted to motions with the extra joint on export. Optionally, you can upload the newly exported character to Mixamo.com and apply motions on it directly.

3. Applying Animation Data To Your Rig:

With your Control Rig Scene open, click the **Import Animation to Control Rig** button. Browse to the fbx animation file. Be careful of your import settings and check scene settings for things like framerate.

You can now animate on top of the animation data with the control rig.



4. Animating on motions Non-Baked on the control rig:

Using the rig unbaked lets you animate additively on top of your motion with clean, zeroed, non-keyed controls without the need for animation layers. You also have access to a keyable animation data multiplier attribute (**AnimDataMult**). This allows you to quickly exaggerate portions of a motion, to tone them down, or if set to 0, turn off the animation data completely so you can hand-key your own animation. The default is 1 to fully follow the animation data.

You may choose to clean the controls at any time, preserving your animation edits while zeroing out the controls. To re-zero your rig's controls, press the "**Clear Animation Controls**" Button. The animation will play twice. Be aware that this also deletes keys on all custom attributes except for FK/IK switches and clears the rig's animation layers.

5. Animating on motions Baked on the control rig:

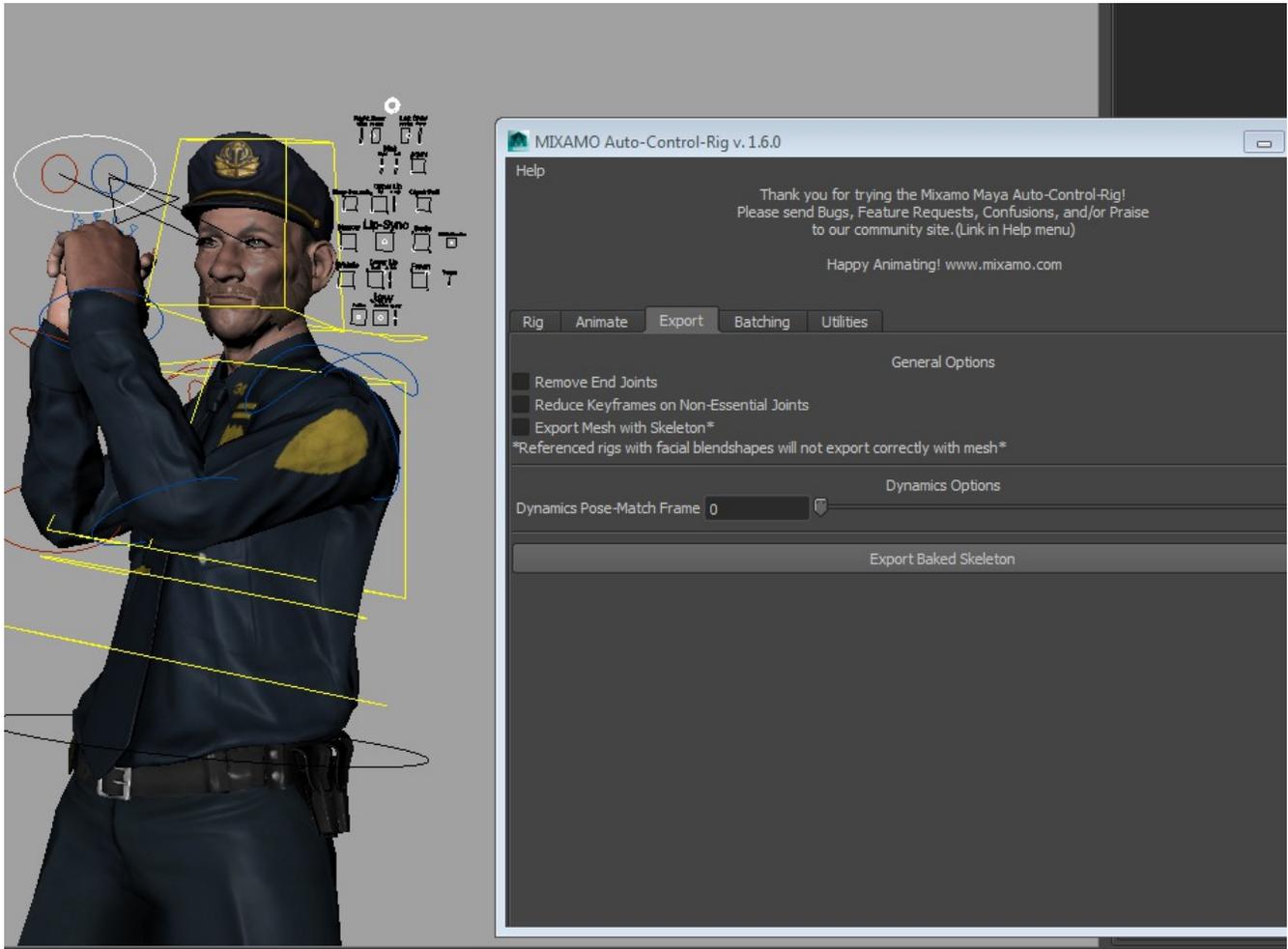
Another option is to bake the animation to the controls by pressing the "**Bake Animation to Controls**" button. This will put a keyframe on every frame on all of the controls' translate and rotate attributes. The animation will play twice.

After baking, you will probably want to use animation layers. See Maya's documentation for more information on animation layers.

You may bake at any time, but just like clearing animation controls, baking deletes keys on all custom attributes except for FK/IK switches and clears the rig's animation layers.

6. Exporting Animations:

Once you are done animating, you may export the animation by clicking “**Export Baked Skeleton**”:



The animation will play once and then an Export Dialog Box will open. If you export as fbx, the file will look like a motion downloaded from Mixamo.com: a clean, baked skeleton and mesh.

Options:

If you wish, you may include the geometry as well by clicking on the **Export Mesh with Skeleton** checkbox. Referenced rigs with blendshapes will not be able to export with mesh. You must import the referenced rig first.

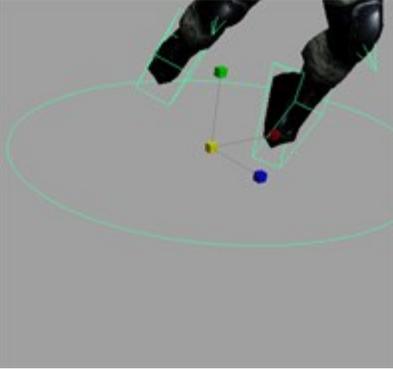
If you are producing for mobile games and want to have the animation baked very efficiently, use the **Reduce Keyframes on Non-Essential Joints** option. The joints needed through the character's core will not be touched, but unessential joints like fingers will be reduced. **Remove End Joints** will delete the unnecessary joints at the ends of chains.

Dynamics Pose-Match Frame is if you are used the **Make Dynamic Chain Rig** utility for this character. It will determine how much to ease in the dynamics for looping.

7. Controls and Attributes:

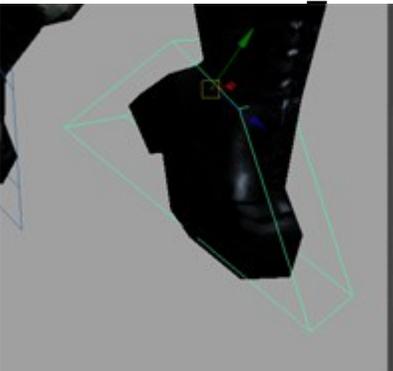
Most controls on the rig have an **AnimDataMult** attribute which, when the rig has animation data connected and is not baked, can exaggerate, tone down, or turn off the underlying animation on that body part.

global_CTRL:



*The Global Control is for offsetting overall placement, rotation, and scale for the rig.

Hand and Foot IK CTRLs:

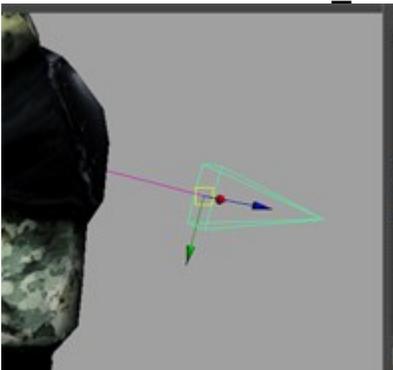


*The IK controls for the feet have a number of custom attributes for pivoting the feet in different ways like **FootRoll** and **ToeTap**.

*If you would like to have the IK controls stick to the global, you must set **AnimDataMult** to **0** and **ParentToGlobal** to **1**.

***FollowBody** makes the IK controls behave more like FK. For instance, with **FollowBody** at **1**, the IK foot controls will follow changes in the Pelvis_CTRL

Elbow and Knee IK CTRLs:

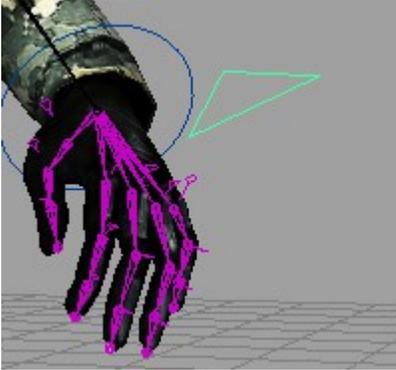


*The pole vector controls have the same **ParentToGlobal** and **FollowBody** attributes as the hands and feet.

***GuideCurve** toggles the visibility of the lines pointing to the knees and elbows, used only for a visual indication of which PV belongs to what body part.

***FollowFoot** constrains the PV to the foot, so as you rotate and translate the foot, the PV follows. It will also maintain its distance in Z from the knee joint.

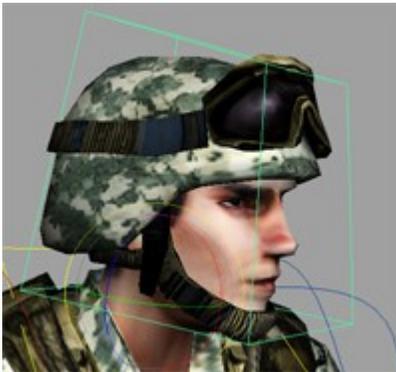
Hand and Foot Options:



*The option controls for the hands have finger attributes like **Finger Curls** and **Spread**

*The options controls are where the **FKIK** attributes are found.

Head_CTRL:



*The only unique attribute to be aware of on the head is **InheritRotation**. **1** will behave like normal FK, **0** will make the control stay oriented to the world.



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