# FaceShift to MODO

## Version 1.0

Philip Stopford - October 31, 2014


Note that this is not affiliated with faceshift

# Table of Contents

# Introduction

FaceShift offers a number of different export modes for getting data into other applications. The most obvious of these is FBX, but several applications have trouble with this due to FaceShift's addition of Takes to the FBX file. These aren't handled, at the time of writing, by MODO, so the animation is not transferred. The workaround has been to use an Autodesk application such as Maya or 3dsmax and to then re-export the FBX out. However, there has been additional work involved to link the blendshape strength animation from that asset to the asset in the scene (merge with items in scene doesn't respect morph/blendshape strength animation)

With this in mind, the BVH export looks like a better option. However, this is also not pain free. Faceshift maps the strength of the various morph shapes to a rotation on joints named after the blendshape. This rotation runs from 0 to 90 degrees. As such, making links between these joint angles and the asset's morph strength is tedious, requiring a lot of manual effort.

This multi-kit package attempts to eliminate this pain. It contains a tweaked version of the powerful bvhLoader package from (https://github.com/dky2496/BVH-Loader-Script-for-modo) and then an additional kit with a tool that relinks the resulting joint animation to the morph strength channel on each Faceshift-driven morph.

# How to install it

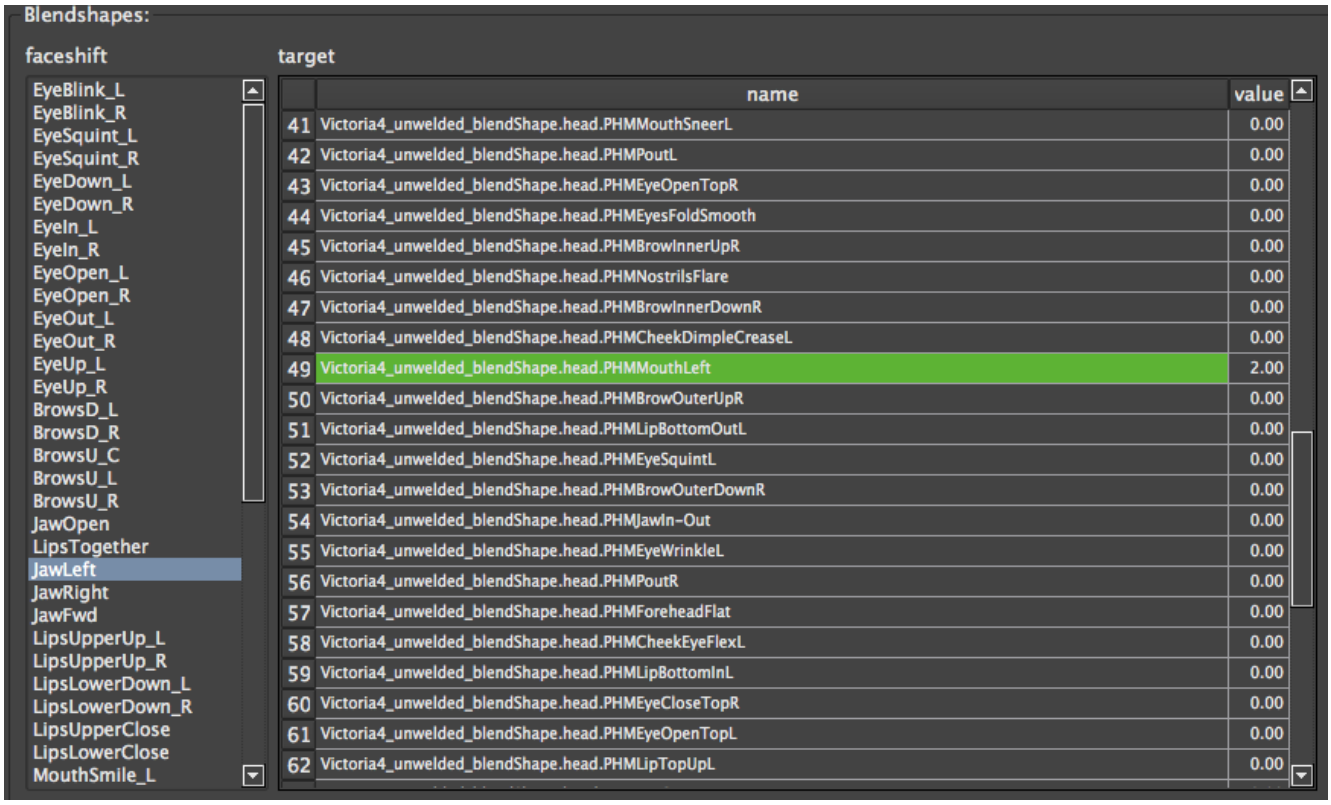
Extract the archive to your User Scripts or User Configs location. You should end up three folders in this location :

- faceShiftToolkit
- faceShiftToolkit_Mapper
- faceShiftToolkit_bvhLoader

When you start up MODO after this, you will find a faceShift panel has been added to the sidebar in the Setup workspace.

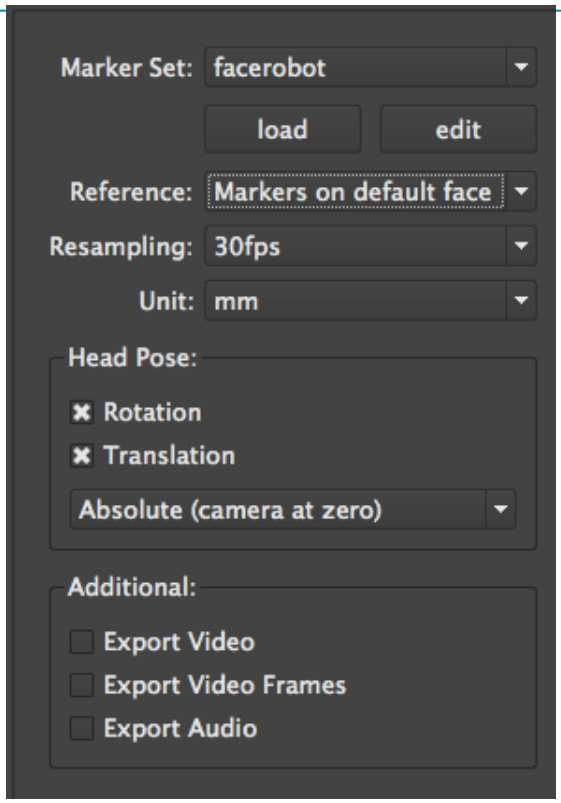
# How to use it

Use Faceshift as normal and link up your target morphs in the usual manner.



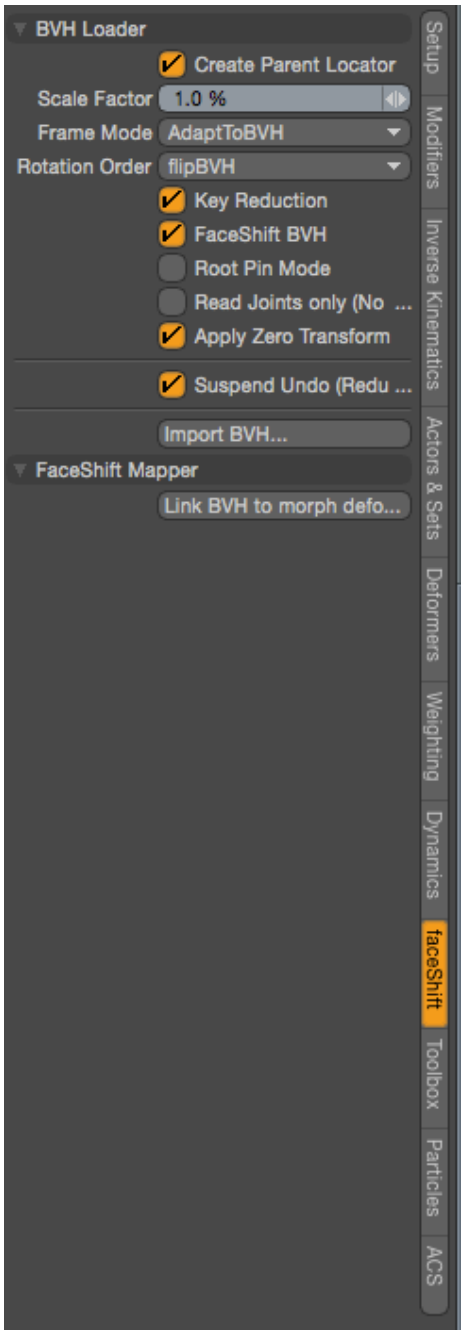

Make sure to save the mapping file and to put this in a place where you can find it - you'll need it for the script in MODO to be able to function.

Once you're happy with your set up in Faceshift, and you're ready to export, choose the Export Markers (bvh) option and you can adjust the settings if needed. Since I'm only going to use the morph markers here, the defaults are fine.




The BVH will be saved out. This is where we use the modified bvhLoader supplied with faceShift Toolkit to bring it in to MODO. We're done with Faceshift so let's head over to MODO.

First up, we need to pull in our working scene that has the asset we're interested in. With that loaded in, let's import our BVH from Faceshift. Head to the Setup workspace and select the faceShift panel from the sidebar.

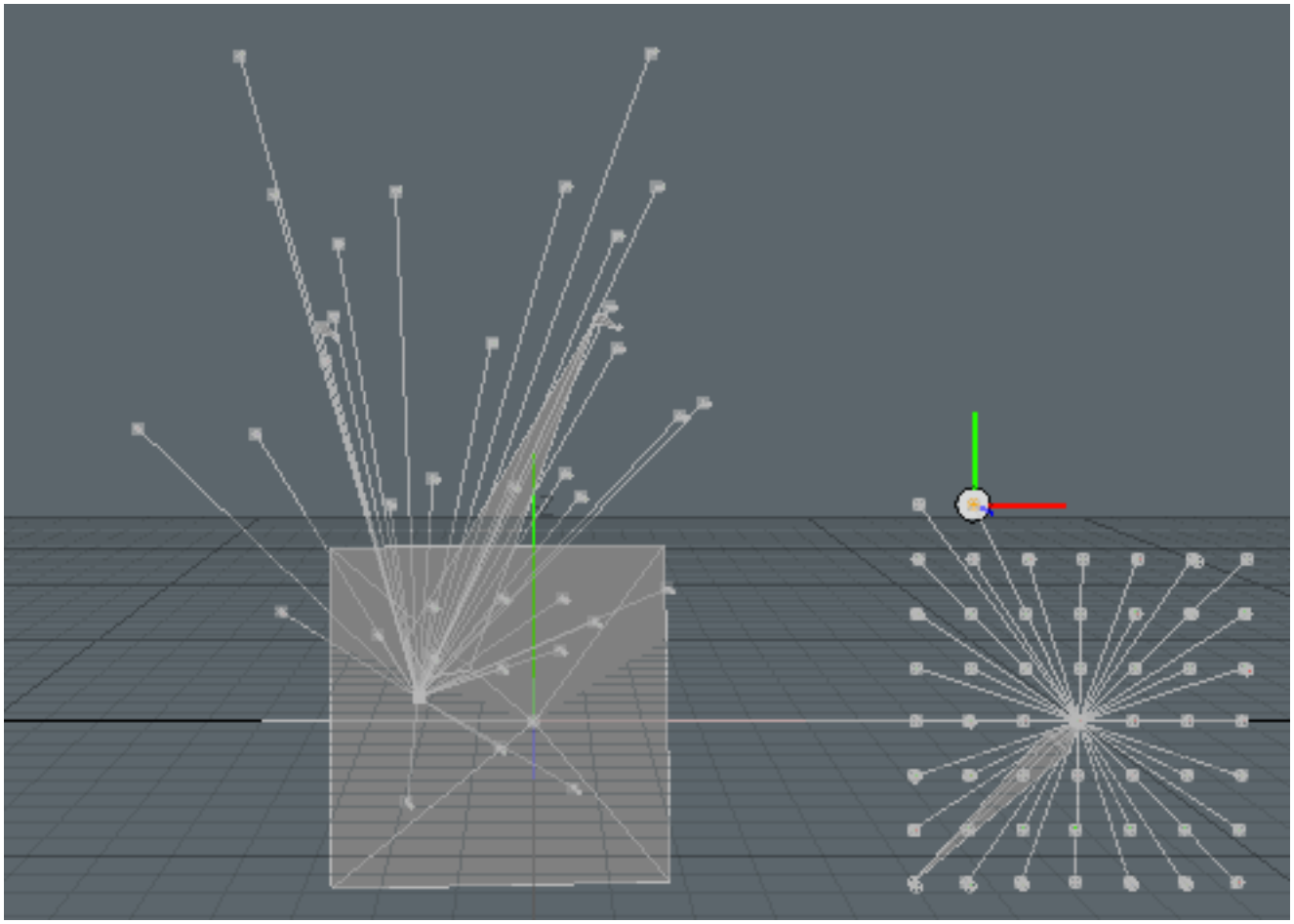


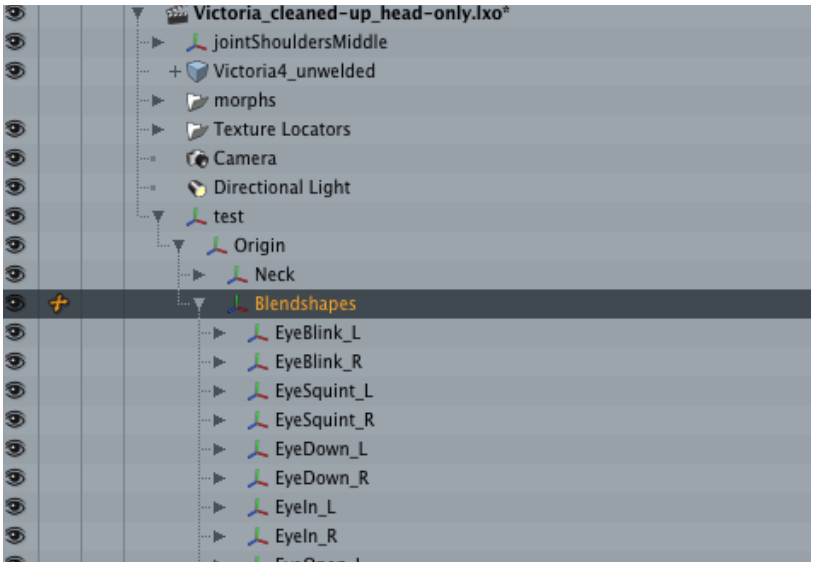

In the BVH Loader subsection (expand it if it's collapsed), select the 'FaceShift BVH' option and import the bvh file that Faceshift created. It will take a little while. The 'FaceShift BVH' option needs to be set in order for the second stage of this process to work. It takes the

0-90 rotation values on the joints written out by faceShift in the BVH file and maps that to a 0-1 Z-scale for the joint.

- This bvhLoader panel is a slightly modified version of that from bvhLoader, so please refer to the Appendix for the additional documentation for this part of the toolkit.

Once this is done, you will see something like the image below - the grid of joints with the varying z-scale are the morph shape outputs. The other group of locators are the face robot style facial markers that Faceshift also outputs, but that we will be ignoring here (you can ignore, hide or delete them for the purposes of this discussion).






So now we come to the second stage of the process, using faceShiftToolkit to relink the animation from the z-scale to the strength channel of each morph.

Drop all selections and then just select the mesh item(s) that you want to drive the morphs on. Note that selecting multiple items here will require that they all share the same mapping file, otherwise you'll need to perform separate runs.

Head over to the faceShift panel that was added to the Setup workspace and look under the faceShift Mapper section : there's only one button 'Link BVH to morph deformers'. Click the button and then navigate to the mapping file that you saved out in faceShift. The script will then use this file to relink the channels. It will complete almost instantly in the majority of cases.

If you scrub the timeline, you will see the animation of the morphs on your character. Note that the animation is linked, so deleting the Blendshapes group in the faceShift-imported hierarchy will remove the animation.

If you have multiple characters in a scene and wish to use different faceShift animation for each case, please only do one at a time and then rename the 'Blendshapes' group after linking the animation. The faceShiftToolkit finds the 'Blendshapes' item in the item list to determine which joints to use for the relinking of animation. Better yet, do this in separate scenes and then import them (perhaps as reference) in to your master scene to avoid trouble.

# Appendix - bvhLoader

The bvhLoader documentation is only supplied in Japanese. This is a basic translation of the material.

- Create Parent Locator : This creates a parent locator named after the BVH file. This allows you to load multiple BVH files into the same scene in an organized manner.
- Scale Factor : This adjusts the size of the joint loaded from the BVH file.
- Frame Mode : Chooses how the animation in the BVH is fitted to the scene in MODO
  - AdaptToBVH : Scales BVH motion to fit MODO frame rate.
  - UseBVHTime : Does not change MODO frame rate
  - UseSceneFrameRate :
- Rotation Order : Recommended to leave to flipBVH, but other options are provided.
  - flipBVH
  - BVH
  - XYZ, XZY, YXZ, YZX, ZXY, ZYX
- Key Reduction : This is a modification for the faceShift toolkit and just calls MODO's internal key reduction feature. It may not always give an ideal result.
- FaceShift BVH : This is a modification for the faceShift toolkit that maps the joint rotation on the face morph strength joints to Z-scale 0-1 range.
- Root Pin Mode : Set this to lock the character in position on X and Z. Ideal for mocap imports for games, etc.
- Read Joints Only (No Motion) : Reads hierarchy from BVH. No animation will be loaded.
- Apply Zero Transform : Zeroes joint transforms as they are imported from the BVH. Allows the skeleton to be reset to a base position and makes for easier additional tweaking.
- Suspend Undo (Reduce Memory Usage) : Per the note, this avoids heavily loading memory due to the number of steps involved in loading the BVH.

# Acknowledgements


- This would have been much more difficult to deliver without the excellent bvhLoader script (https://github.com/dky2496/BVH-Loader-Script-for-modo)

# Copyrights and Licenses