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Code Review By Lateasusual*

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Introduction

The purpose of Face Rigger Addon is to allow anyone to create a face rig for models with an existing armature using shape keys or face bones.

Features:

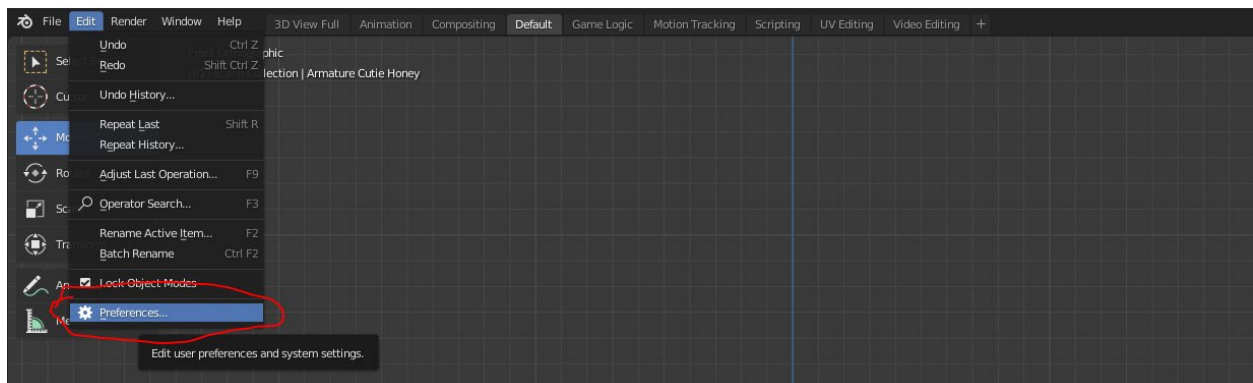
- Able to take a model's shape keys to create a face rig using drivers
- Able to convert armature actions and use them for the face rig
- Able to rescale face bones to make them easier to view
- Face Rig controls
 - Eye pupils
 - Middle Eyebrows
 - Inner Eyebrows
 - Upper Eyelids
 - Lower Eyelids
 - Lip Corners
- Able to create the following phonemes using the Phoneme table
 - Ah
 - Oh
 - Tn
 - Fv
 - Bm
- Locks the face rig to a bone of your choosing

Limitations:

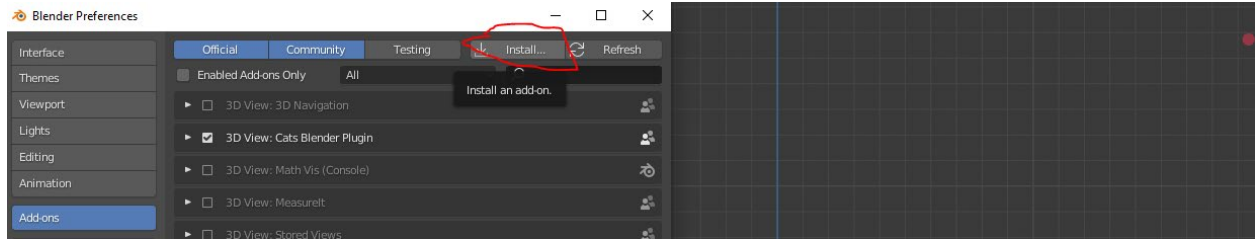
- Does not control any face bones not included in the Face Rig
- Does not control Phonemes beyond the few listed
- The face bones for the left and right side **MUST HAVE A SYMMETRICAL NAMING CONVENTION**
- Intended for Blender 2.8x and up. No plans for a 2.79 version is planned

Installation

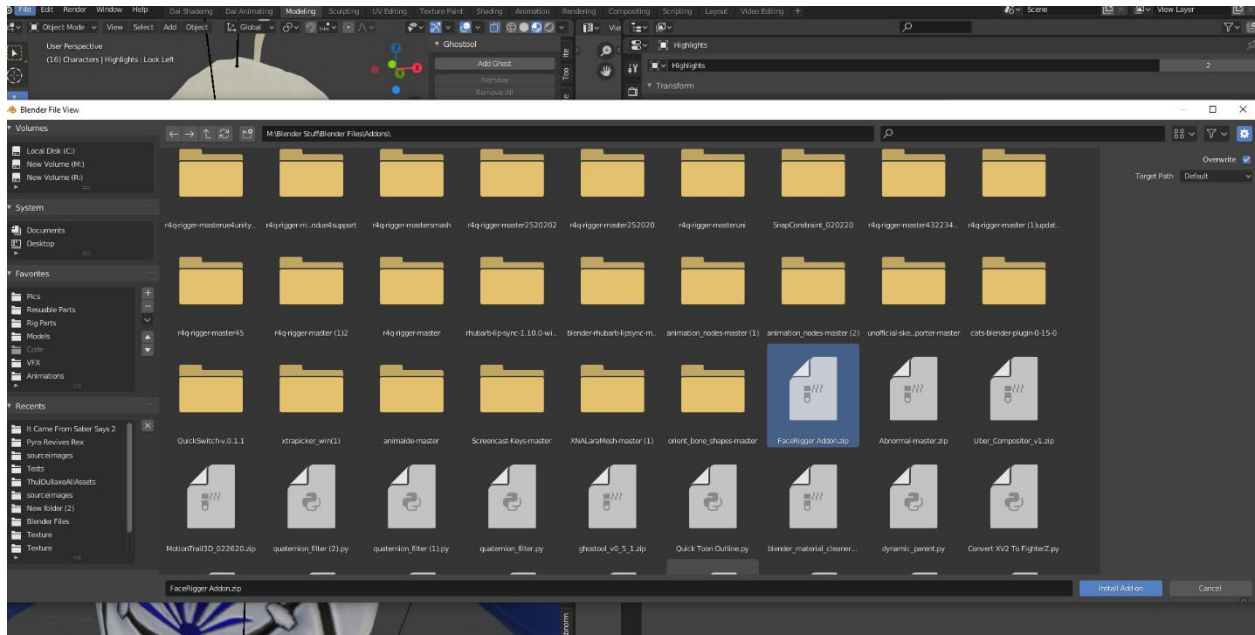
After downloading the addon's zip file. Open Blender and navigate to **Edit->Preferences**



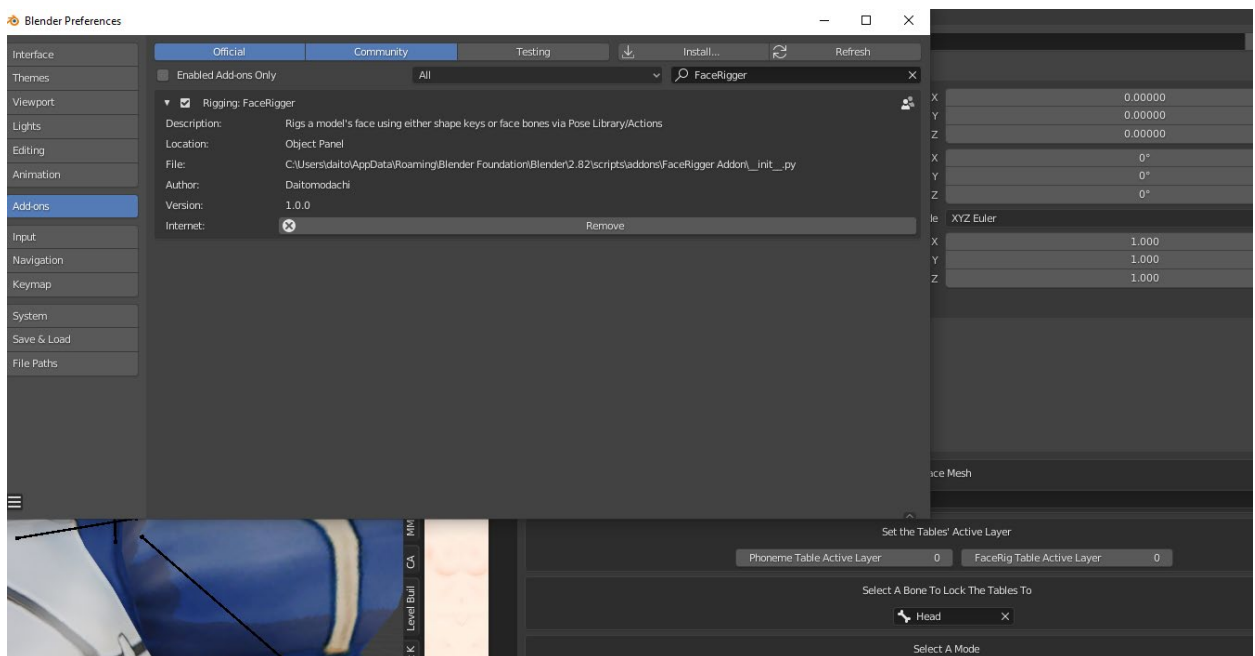
Then navigate to **Addons->Install**



Find the addon's zip file and select it.



Activate it by clicking on the check mark.

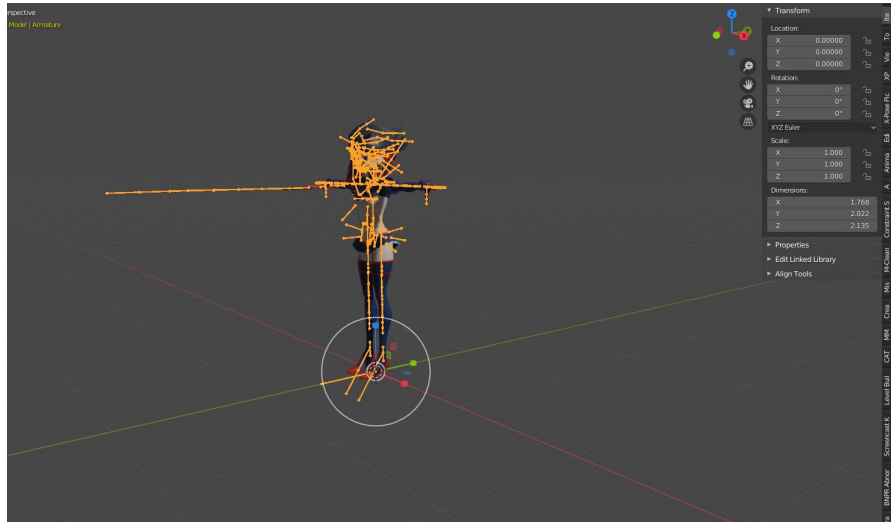


If it does not show up immediately, use the addon's search feature to look for the addon.

Preparation

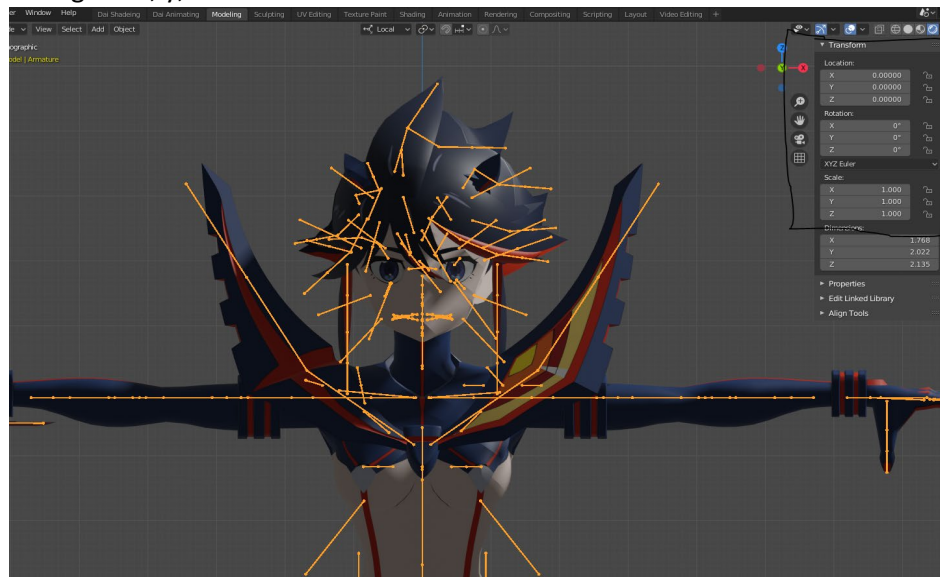
Before using the addon, the following steps must be performed.

First, go into Object Mode and place the model at the world's origin with it facing the negative Y direction (if you have not already). The figure below shows the proper orientation



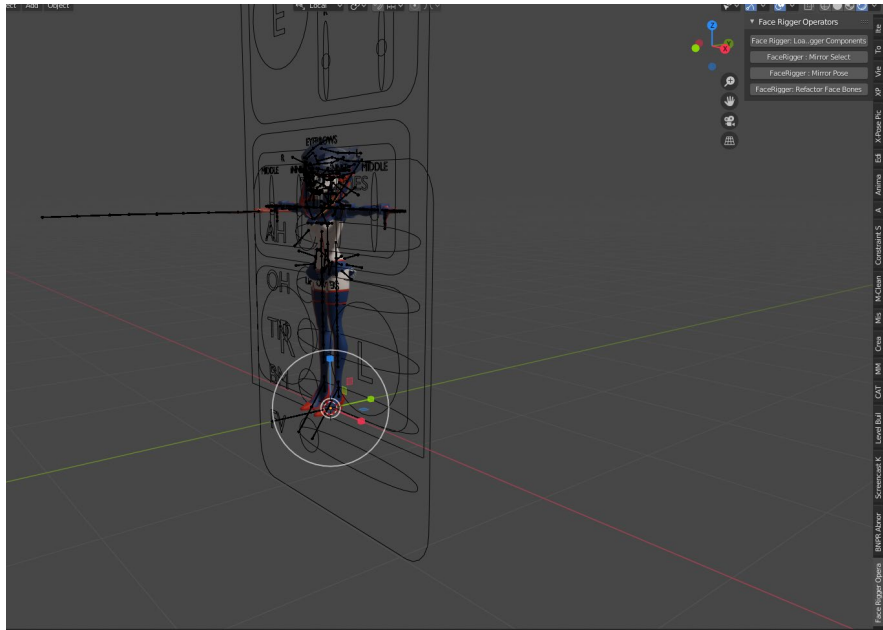
While in Object Mode, make sure the model has all transforms already applied at this location. The transforms should be applied if

- The location along the x, y, z axes are zero
- The rotation along the x, y, and z axes are at 0 degrees (having one setting at -0 degrees does not count!). For Quaternion, the W value should be 1.
- The scale along the x, y, z axes are 1



If any of these transforms are not like the ones shown in the figure above, make sure to select the meshes and the armature, and apply all transforms (**CTRL-A**)

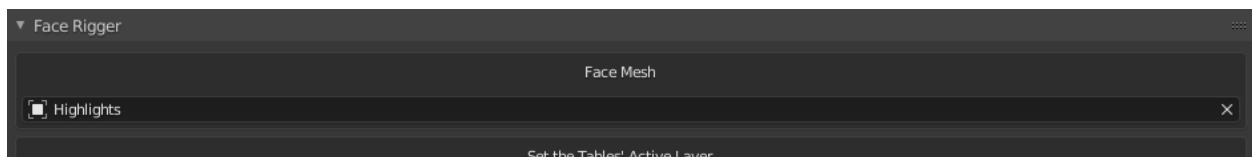
Once you checked to make sure all the transforms are applied, load in the Face Rigger Components by going to the panel, look for Face Rigger Operators, and Load Face Rigger Components.



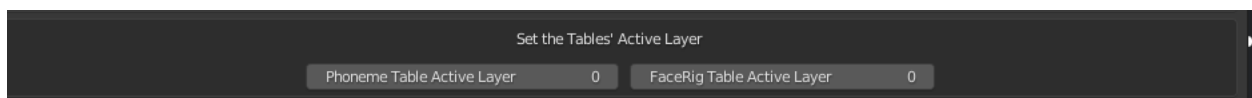
Position and scale the tables to your liking. **DO NOT APPLY TRANSFORMS TO THEM. IT WILL NOT WORK.**

Using the Addon (Shape Keys Version)

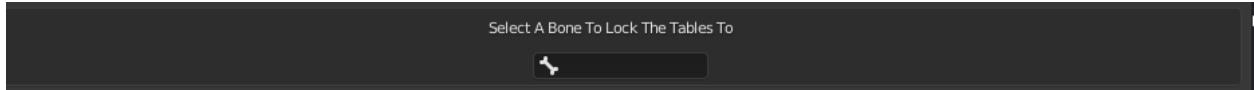
If your model has shape keys for the main face, then it should be possible to rig it using the shape keys version of the addon. Go to the Object Data Tab in Properties and look for “Face Rigger.” Use the Eyedropper tool to select the face mesh that has your shape keys.



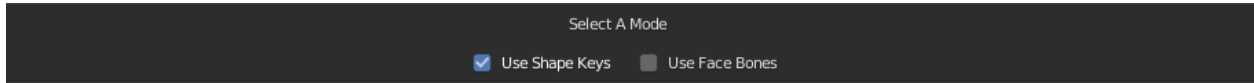
Then set the bone layers that you want the Face Rig and Phoneme Tables you want them to appear. Use values between 0 – 31.



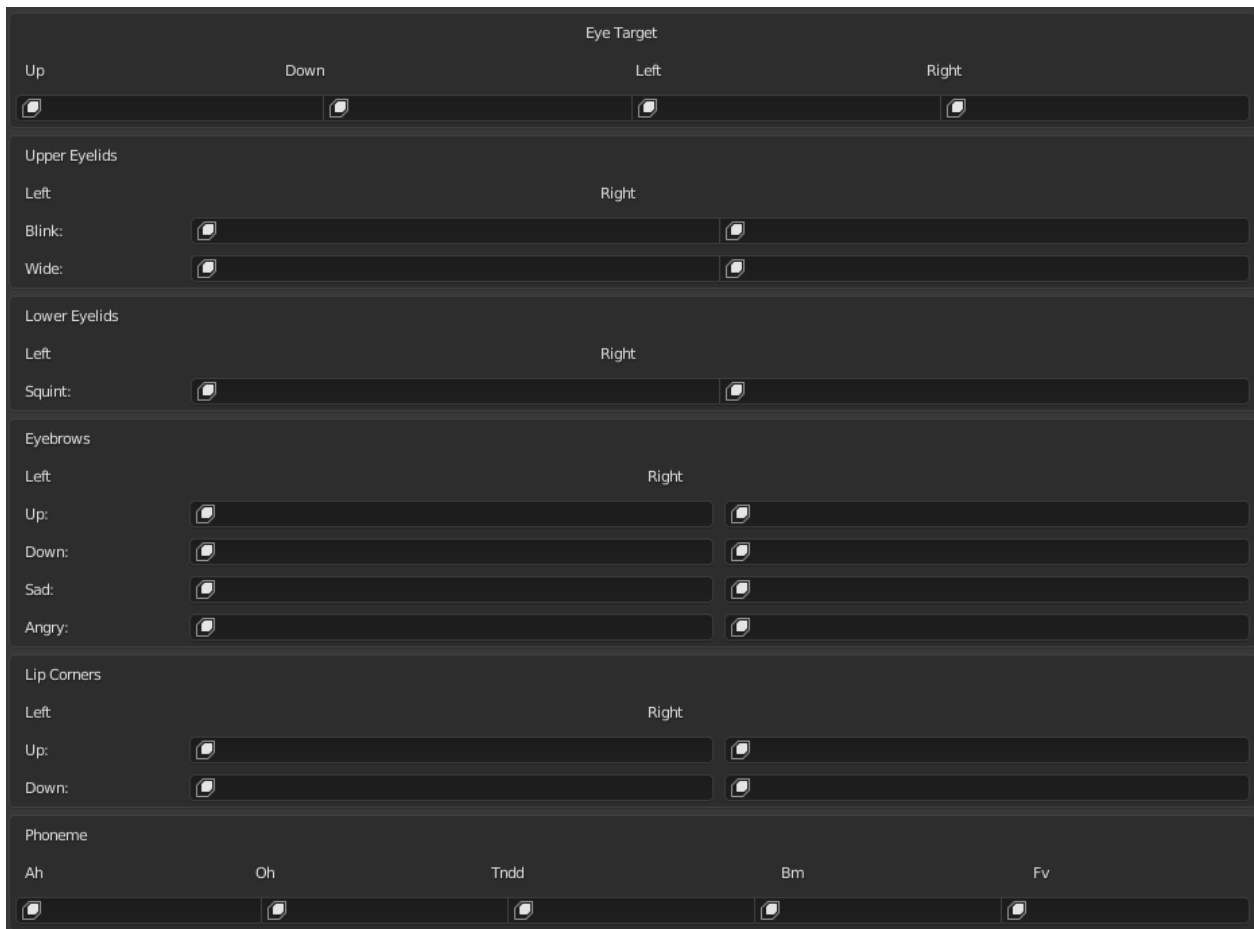
Afterward, select the bone that you want the tables to lock to. It is not necessary to lock the tables to the head bone. It can be locked to any bone.



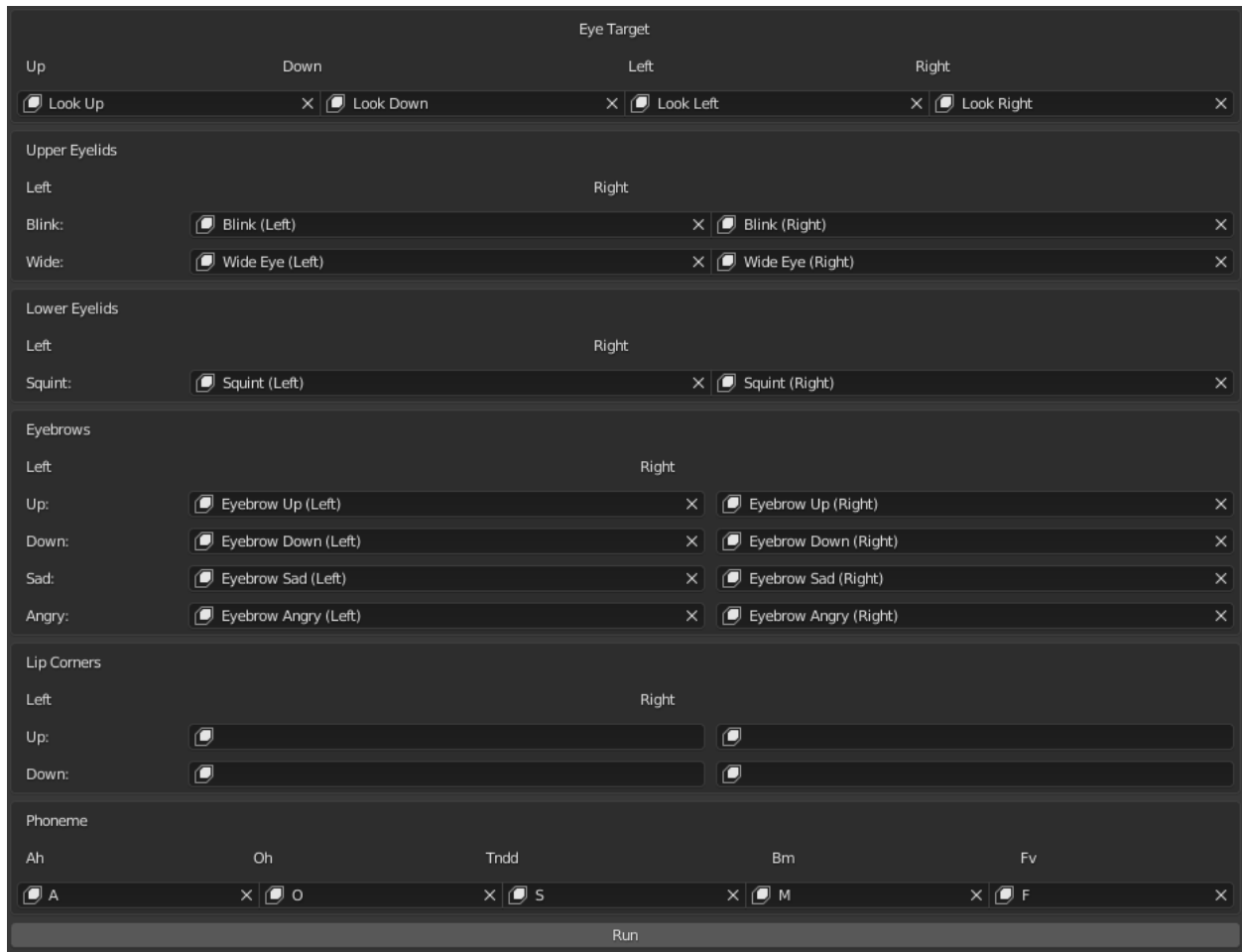
Then select “Use Shape Keys” checkbox for the addon.



Once you do that, the following options should be available. Put in the shape keys that matches with the specified fields. If you cannot find a field that matches, leave it blank or create a shape key for that action.



Depending on the naming of your shape keys, the addon will auto recognize some shape keys.



Pre-fill Feature

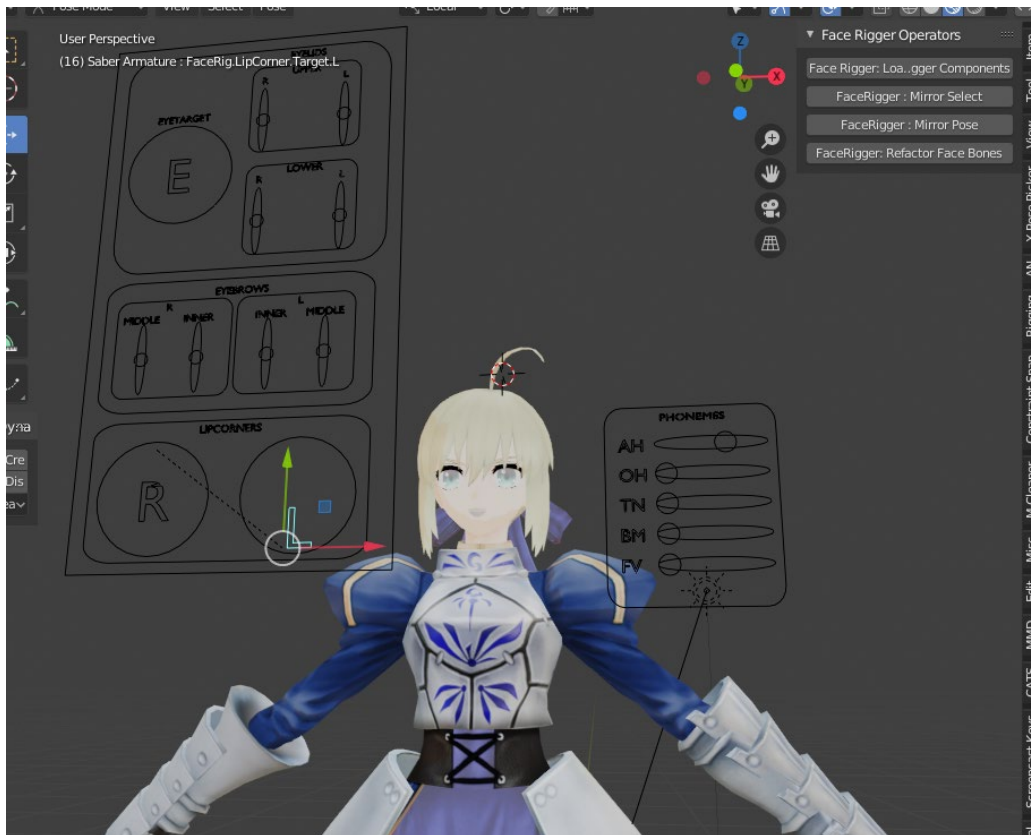
The list of recognized shape keys can be found in the following table

Shape Key	Supported Names
Eye Target Up (Eyes Looking Up)	Look Up, Eyes Up, EyeUp, Up, Eyes Up, EyeUP
Eye Target Down (Eyes Looking Down)	Look Down, Eyes Down, EyeDown, Down, Eyes Down, EyeD
Eye Target Left (Eyes Looking Left)	Look Left, Eyes Left, EyeLeft, Left, Eyes L, EyeL
Eye Target Right (Eyes Looking Right)	Look Right, Eyes Right, EyeRight, Right, Eyes R, EyeR
Left Blink	Blink (Left), EyeCloseL, Closed Eye L, Eye close L, BlinkL, Blink L, Blink_L, Blink_l
Right Blink	Blink (Right), EyeCloseR, Closed Eye R, Eye close R, BlinkR, Blink R, Blink_R, Blink_r
Left Wide	Wide Eye (Left), Wide L, Open Wide L
Right Wide	Wide Eye (Right), Wide R, Open Wide R
Left Eyebrow Up	EyebrowUPL, Eyebrow Up (Left)
Right Eyebrow Up	EyebrowUPR, Eyebrow Up (Right)
Left Eyebrow Down	EyebrowDOWNL, Eyebrow Down (Left)

Right Eyebrow Down	EyebrowDOWNR,Eyebrow Down (Right)
Left Eyebrow Sad	SadEyebrowL,Eyebrow Sad (Left)
Right Eyebrow Sad	SadEyebrowR,Eyebrow Sad (Right)
Left Eyebrow Angry	AngryEyebrowL,Eyebrow Angry (Left)
Right Eyebrow Angry	AngryEyebrowR,Eyebrow Angry (Right)
Lip Corners Left Up (Left Smirk)	SmileL,Smile (Left)
Lip Corners Right Up (Right Smirk)	SmileR,Smile (Right)
Lip Corners Left Down (Left Down)	FrownL,Frown (Left)
Lip Corners Right Down (Left Down)	FrownR,Frown (Right)
Lower Eyelids Left Squint	Squint (Left),EyeSquintL
Lower Eyelids Right Squint	Squint (Right),EyeSquintR
Phoneme Ah	A,Ah,AE,AH
Phoneme Oh	O,o,Oh,oh,OH
Phoneme Tn	S,s,SD
Phoneme Bm	M,m,MB,mb
Phoneme Fv	F,f

Please note that the pre-fill option is currently not available for the Face Bones version of the addon. It will be added in the future.

Hit run and the face should be rigged.



Using the Addon (Face Bones Version)

For the Face Bones process, you need to create actions to be used by the addon. However, some time will be spent explaining some crucial features for the Face Bones version.

Symmetric Face Bones

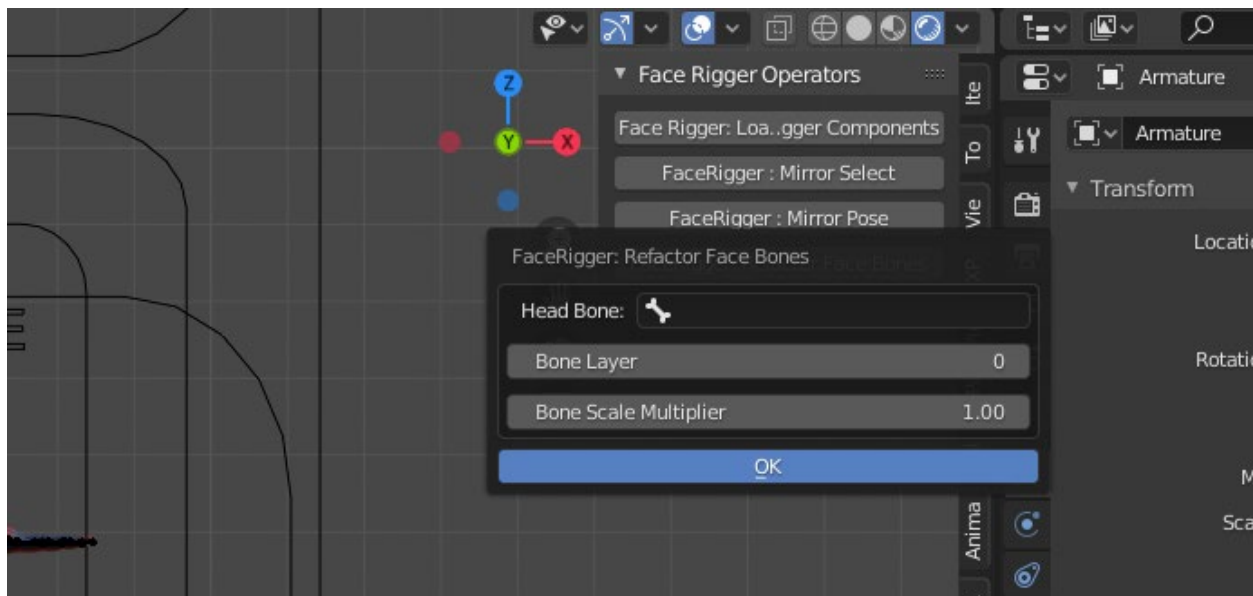
For this version of the addon to work, the model's face bones must have a designator for the left or right face side of the face bones. Please use one of the following designators.

Designator	Example
_L/_R (Suffix)	Lip Corner_L , Lip Corner_R
.L/.R (Suffix)	Eye.L , Eye.R
Left/Right (Place in the middle of the bone's name)	Head Left Eyeball , Head Right Eyeball
L_ / R_ (Prefix)	R_Eyeball , L_Eyeball
L./R. (Prefix)	L.Lip_Corner , R.Lip_Corner

If the model does not have these designators, you can rename the bones using CTRL F2 and use the bulk name feature. Please note that face bones located in the middle of the model's face does not need a designator.

Refactor Operator

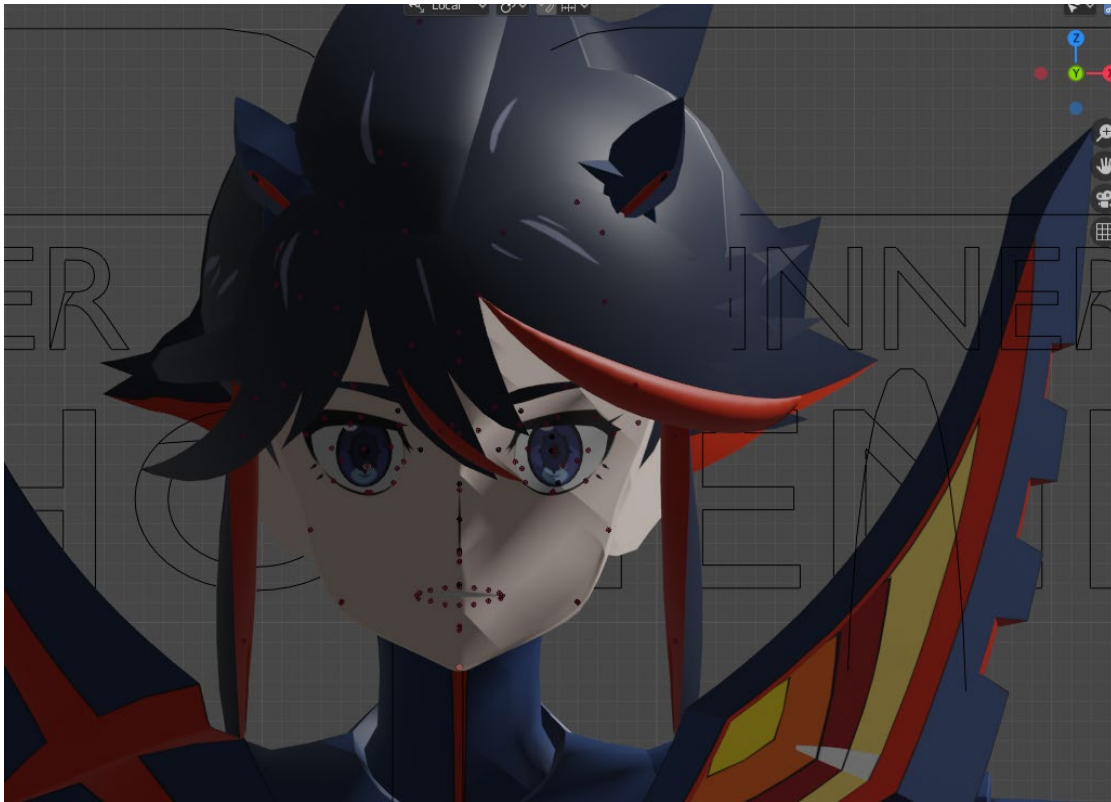
If there are a lot of face bones that makes it difficult to view, the Refactor Operator should be used. To run the refactor addon, go to the Face Rigger Operators Panel and hit the Refactor Face Bones operator. The following dialog should pop up.



- **Head Bone:** Put in the head bone of the armature. All the bones parented to head will be affected by the refactor operation including hair bones.
- **Bone Layer:** Sets the bone layer that the face bones will be moved to. If you want to stay in its current layer, just set it to the bone layer that the face bones are currently on.

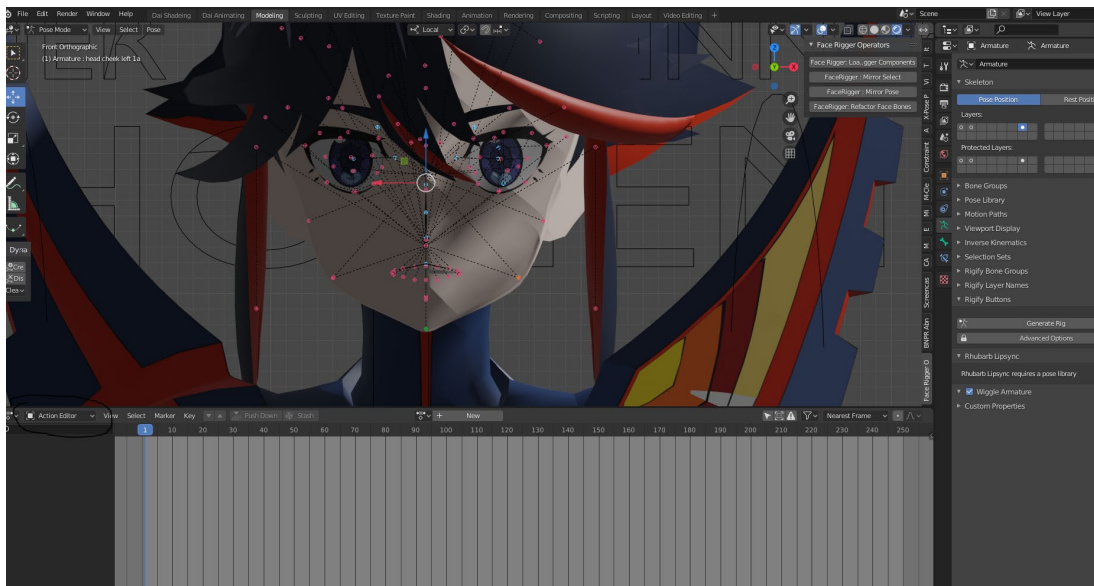
- **Bone Scale Multiplier:** If the current face bones are too big or too small, adjust this setting.

Run the operator and the face bones should be easier to view and pose.

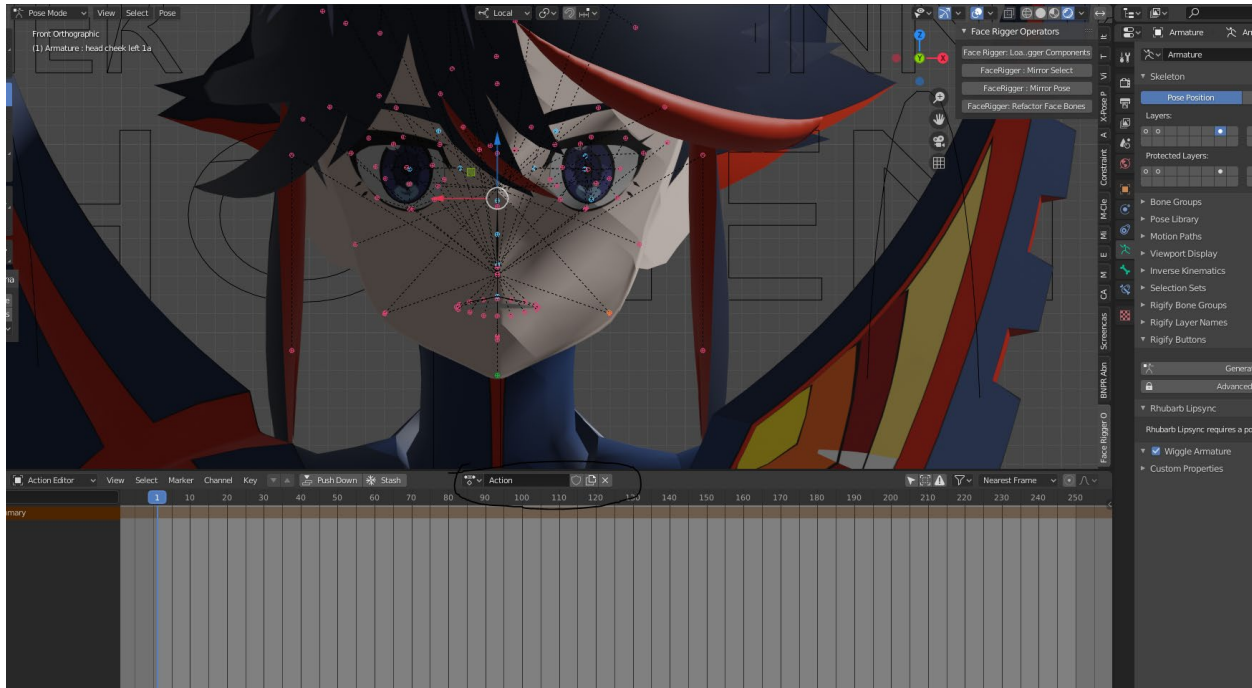


Creating Actions

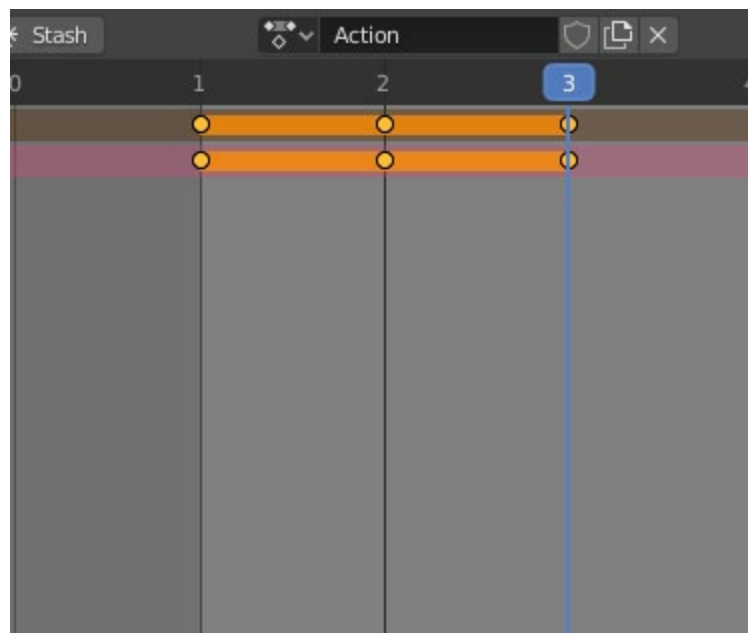
The Face Bones version of the addon uses actions to create the poses for the face. To create an action, go to the Dope Sheet and change it to the Action Editor.



Hit new and a new action should be created.



For the main Face Rigger, each action must have 3 keyframes.



- **First Keyframe:** The pose when the slider, Eye Target, or Lip Target, is fully down. Also used when the Eye or Lip Target is fully to the left.
- **Second Keyframe:** The neutral pose.
- **Third Keyframe:** The pose when the slider, Eye Target, or Lip Target, is fully up. Also used when the Eye or Lip Target is fully to the right.

Please keep in mind that the specified order goes from left to right. When you finish setting up a pose for each action, hit the shield icon to save the action.

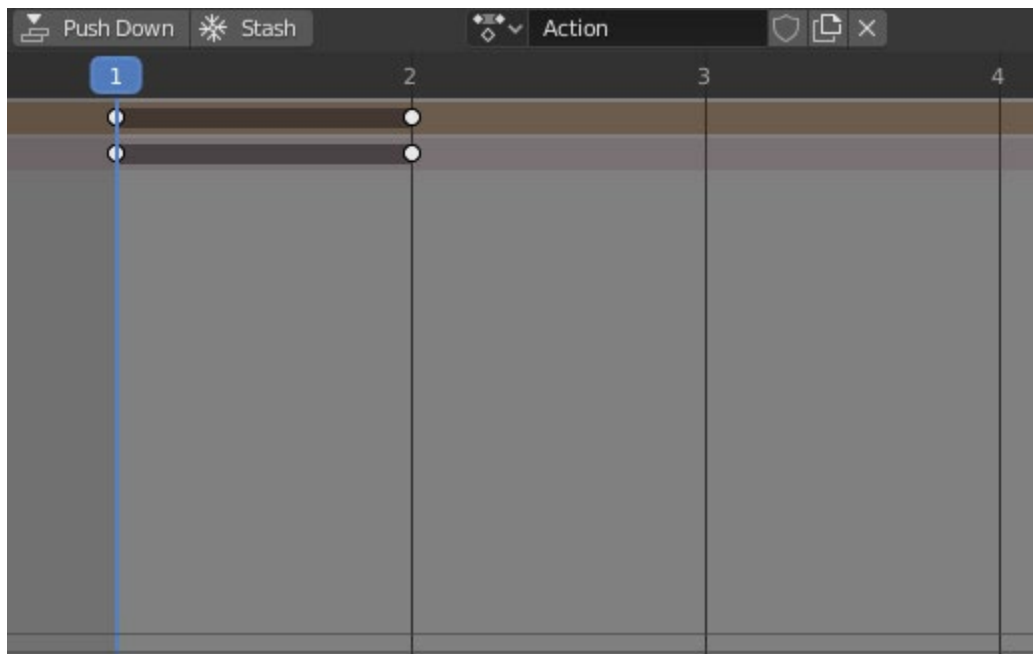


The following table provides reference poses for the actions needed for the Face Bones version of the addon. Please note that the references were taken from past models rigged with the addon and best expresses the poses for the actions needed.

Action Name	Frame 1	Frame 2	Frame 3
Eyes Up Down			
Eyes Left Right			
Blink/Wide			
Wide/Lower Squint			
Eyebrows Up/Down			



The Phonemes are a little different. Instead of using 3 keyframes, you just need to use two.

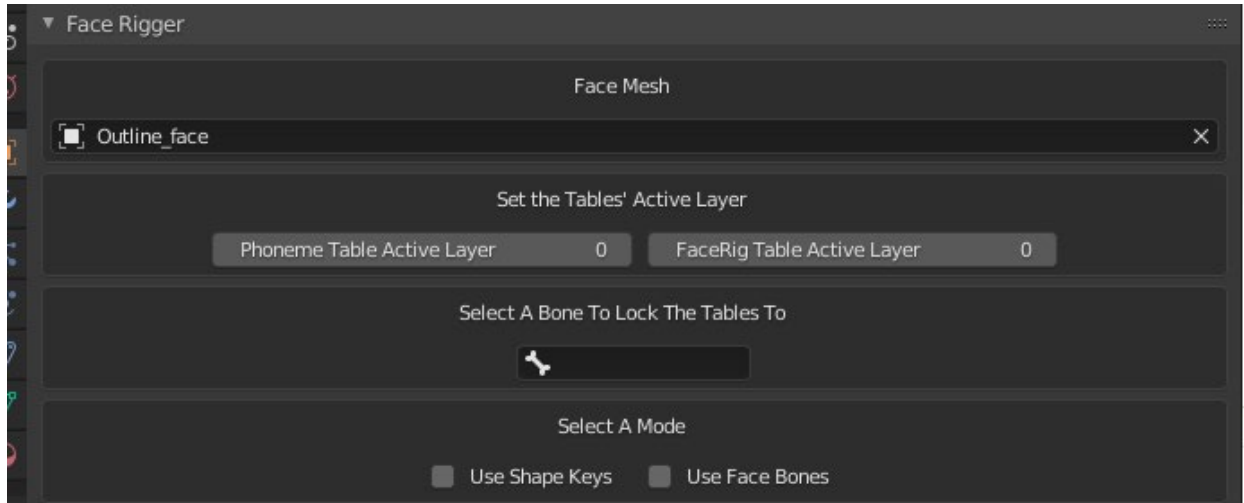


- **First Keyframe:** This stores the neutral pose for the model.
- **Second Keyframe:** Stores the lip pose for a particular action.

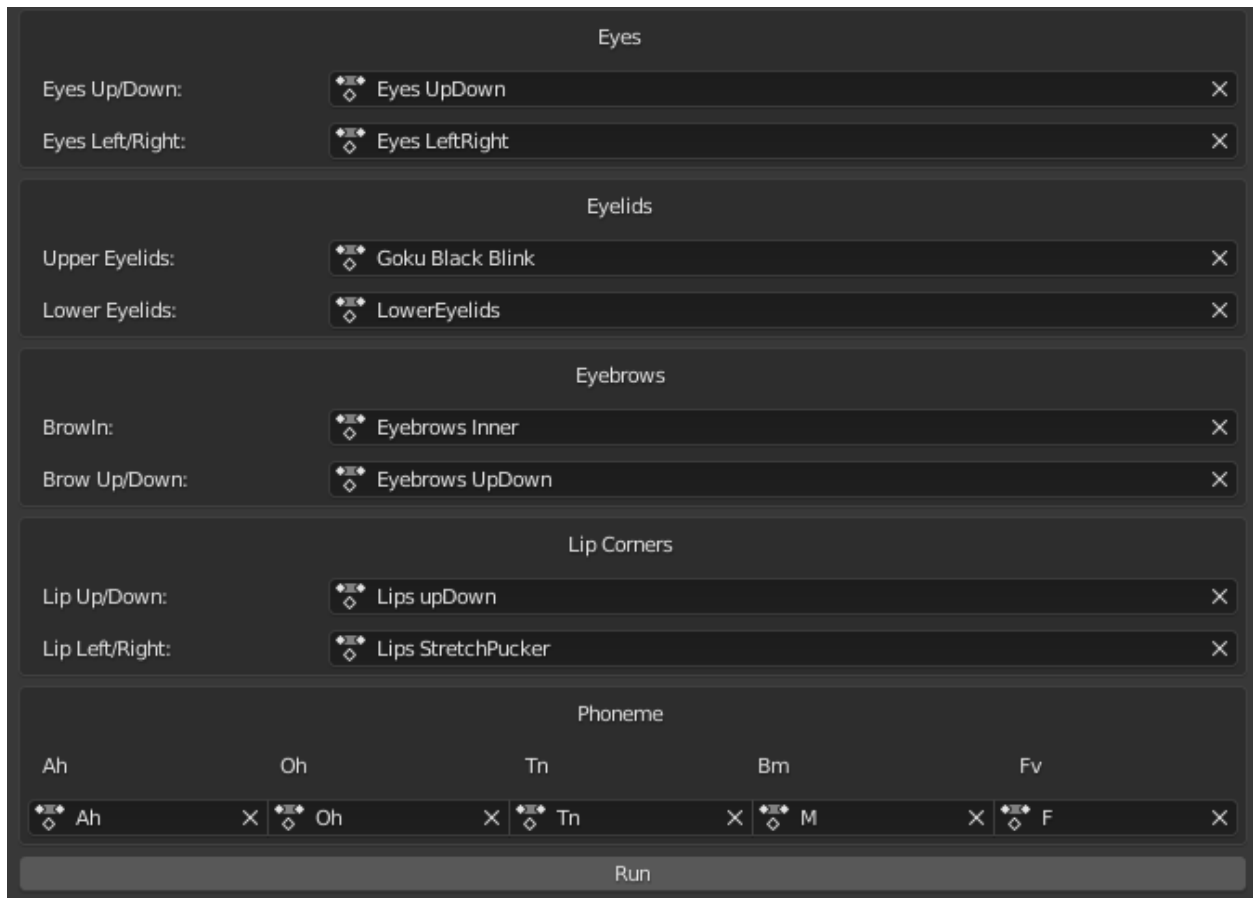
Like the Face Rig, this assumes you are going from left to right. Please note that aside from the Phonemes, all the previously mentioned actions must be created for the addon to work.

Running the Addon

Like the shape keys version, go to the Object Data tab and look for the Face Rigger addon. Select your face mesh using the eye dropper, set the Phoneme and FaceRig tables' bone layer, and set the bone you want the tables to lock to.



Unlike the Shape Keys version, set the mode to “Use Face Bones.” Fill in the right actions for each field.



Select the model's armature and hit run. The model's face should be rigged.

If you run into any issues running the addon, please email me at Daitomodachichannel@gmail.com.

Please note that I will not respond to issues via YouTube comments or Twitter mentions. It is difficult to address troubleshooting issues using social media.

*With that said, thank you for reading and I
hope you have a wonderful day or night!*