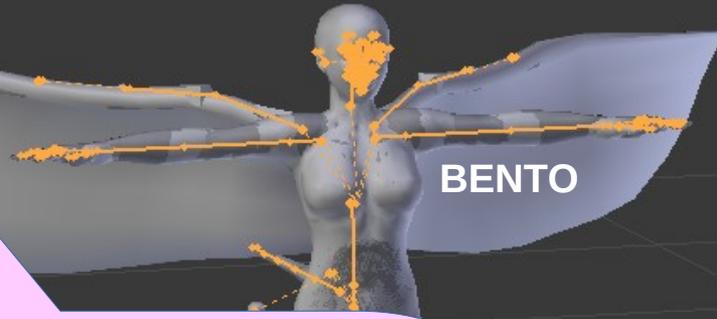


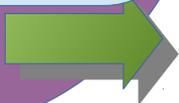
# ~BENTO~ animation



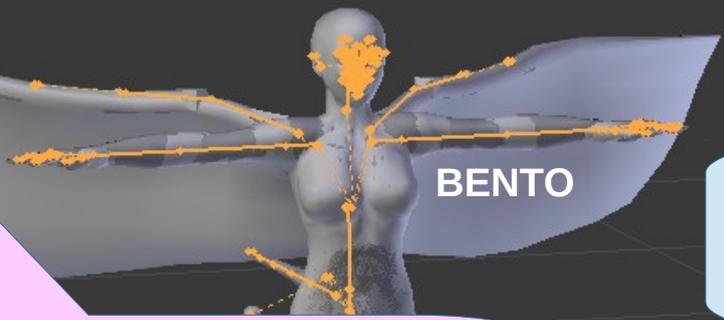
Now that we have rigged Rex with bento (*Bento armature tutorial*) how can we go on with animation like sit or walk



Yap in a previous tutorial we have rigged REX the DOG with a part of these bones.  
But before we go on with REX-BENTO.  
Let see what animation is about.



# ~BENTO~ animation



Though we could use blender from the REX files?

A how to is presented by Second Life™ here:  
[How to create animations](#)

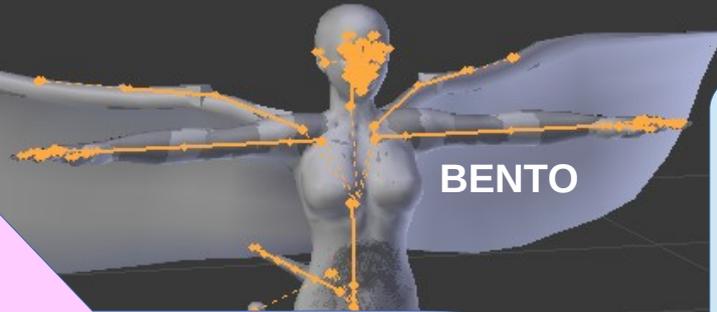
Yes that is what we intend to do. You can use avastar too for animation.  
[Avastar rigging and animation blender add on .](#)

We did not use avastar for rigging rex do we have to now for animation ?

No we dont we will see how but still with avastar life would be simpler.



# ~BENTO~ animation



Great these are the standard animation already available in opensim under the same UUID.

Please go on and download the standard secondlife™ bvh animation from following link:  
[standard BVH files for opensim.](#)

Yap you can use them as templates and modify as needed will see about that in a moment.



# ~BENTO~ animation



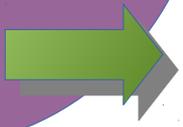
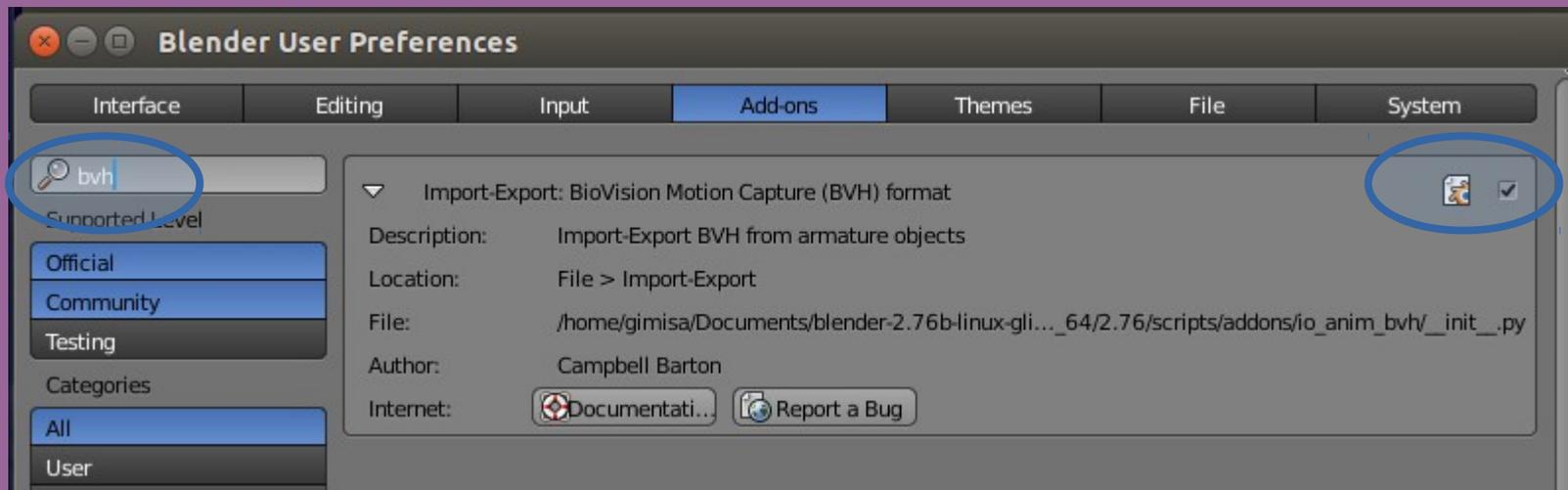
So I open up blender and what you suggest I do .

BENTO

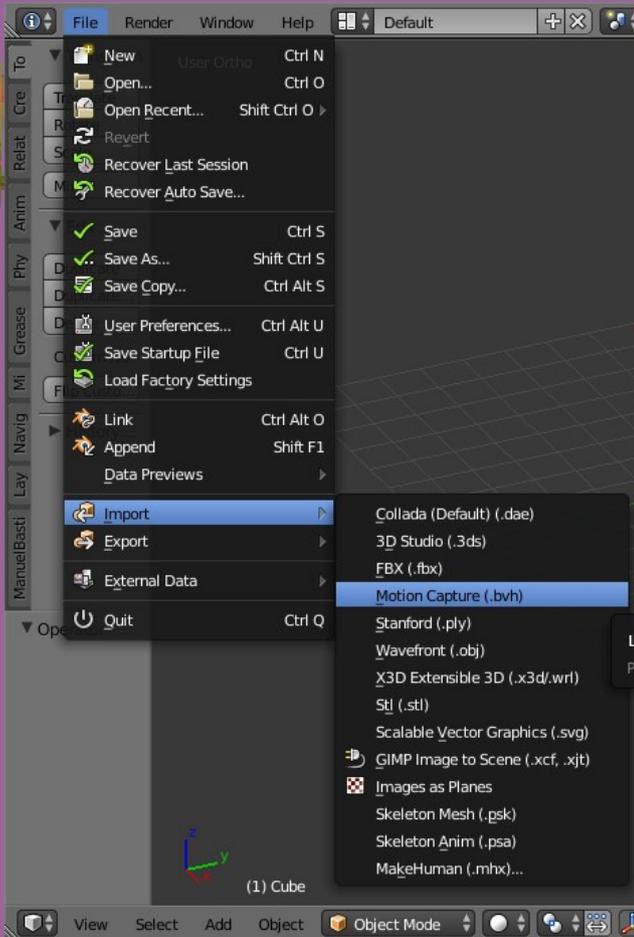
So in File, preference addon I type **bvh** and make sure its selected in .



First make sure you have **bvh** import add on . ( the opensim format for animation file)



# ~BENTO~ animation



Now for a test lets import a SL\_Avatar\_Tpose.bvh from the standard animation file we have downloaded earlier.

So in File I go import and there I have BVH file type select it find the file SL\_Avatar\_Tpose.bvh And hit enter.



# ~BENTO~ animation

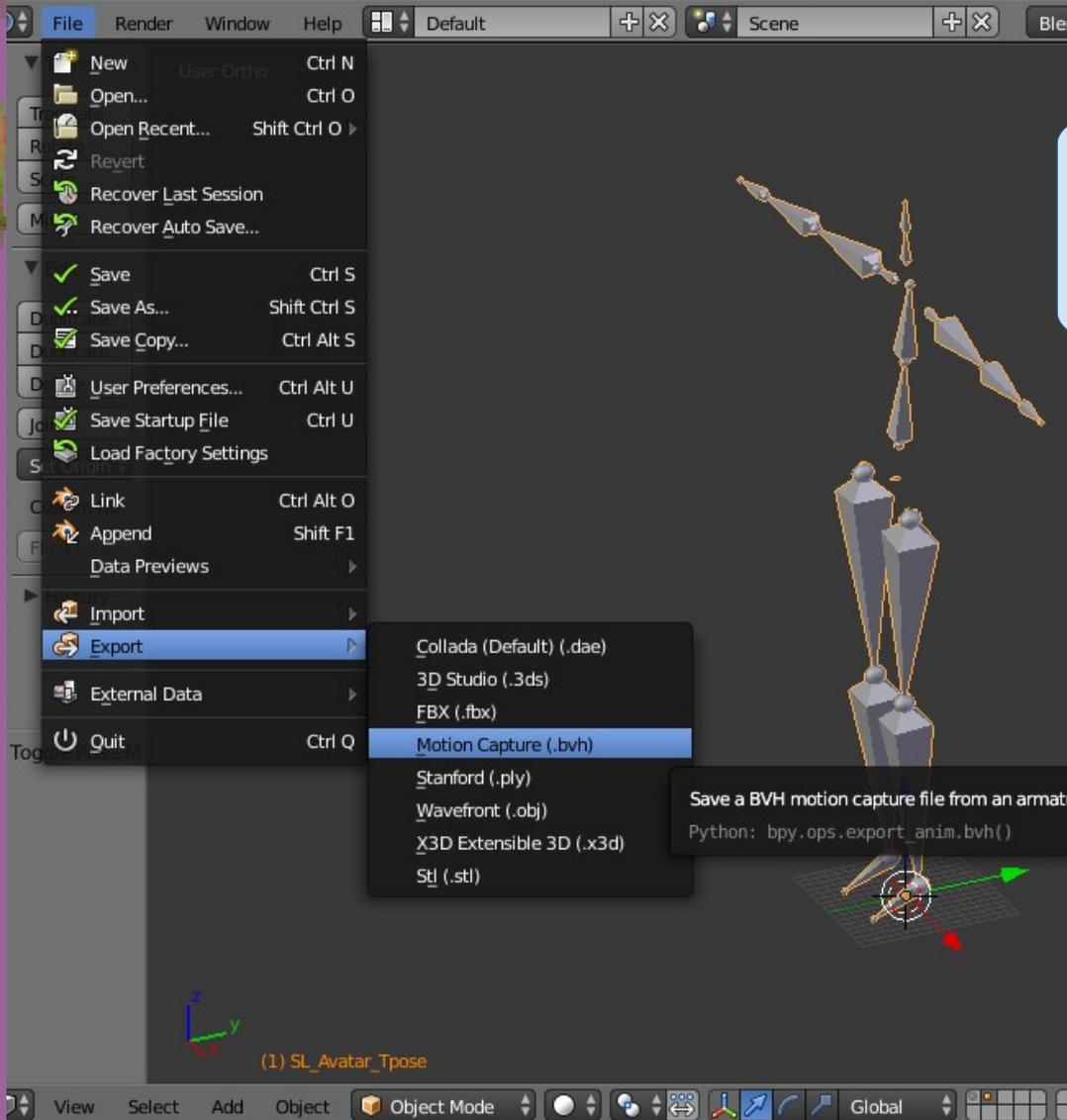


Cheek I get a monster in return.  
And where is the avatar???

Ya no avatar. You get only an bone  
armature. Since t-pose is only a pose  
it has even no animation to speak of.

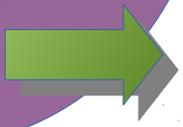


# ~BENTO~ animation



Export that out now as  
test-tpose.bvh  
We will try an opensim  
animation import.

So file export motion  
capture bvh files.



# ~BENTO~ animation



Singularity Viewer - gimisa cerise

File Edit View World Tools

- Upload Image (free)... Ctrl-U
- Upload Sound (free)...
- Upload Animation (free)...
- Upload Mesh...
- Bulk Upload (free per file)...
- Import Object XML
- Import with Textures
- Change Local Textures
- Set Default Permissions...
- Minimize All Windows
- Close Window Ctrl-W
- Close All Windows Ctrl-Shift-W
- Save Preview As...
- Take Snapshot Ctrl-Shift-S
- Snapshot to Disk Ctrl-`
- Quit Ctrl-Q

Then viewer and upload animation. But hey!! What is wrong I cant upload it ????

tposeTestTuto0.bvh

Name: :tposeTestTuto0

Description:

Priority 0

Loop In(%) 0.000 Out(%) 0.000

Hand Pose Spread

Expression [None]

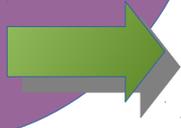
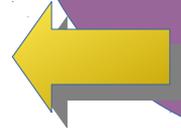
Preview while Standing

Ease In (sec) 0.000 Ease Out (sec) 0.228

Failed to initialize motion

Upload (free) Cancel

Nop, we just did not applied the proper procedure. Lets back track

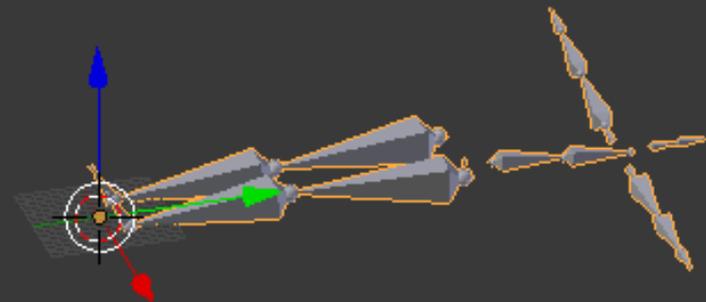
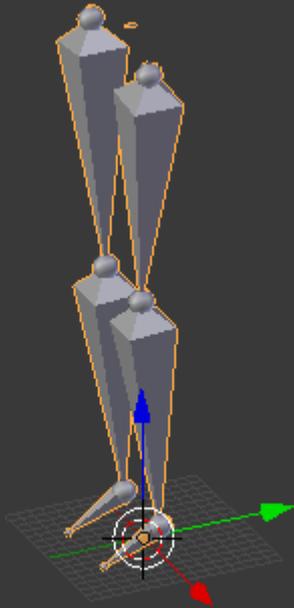
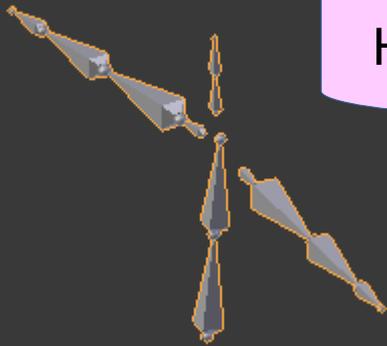


# ~BENTO~ animation

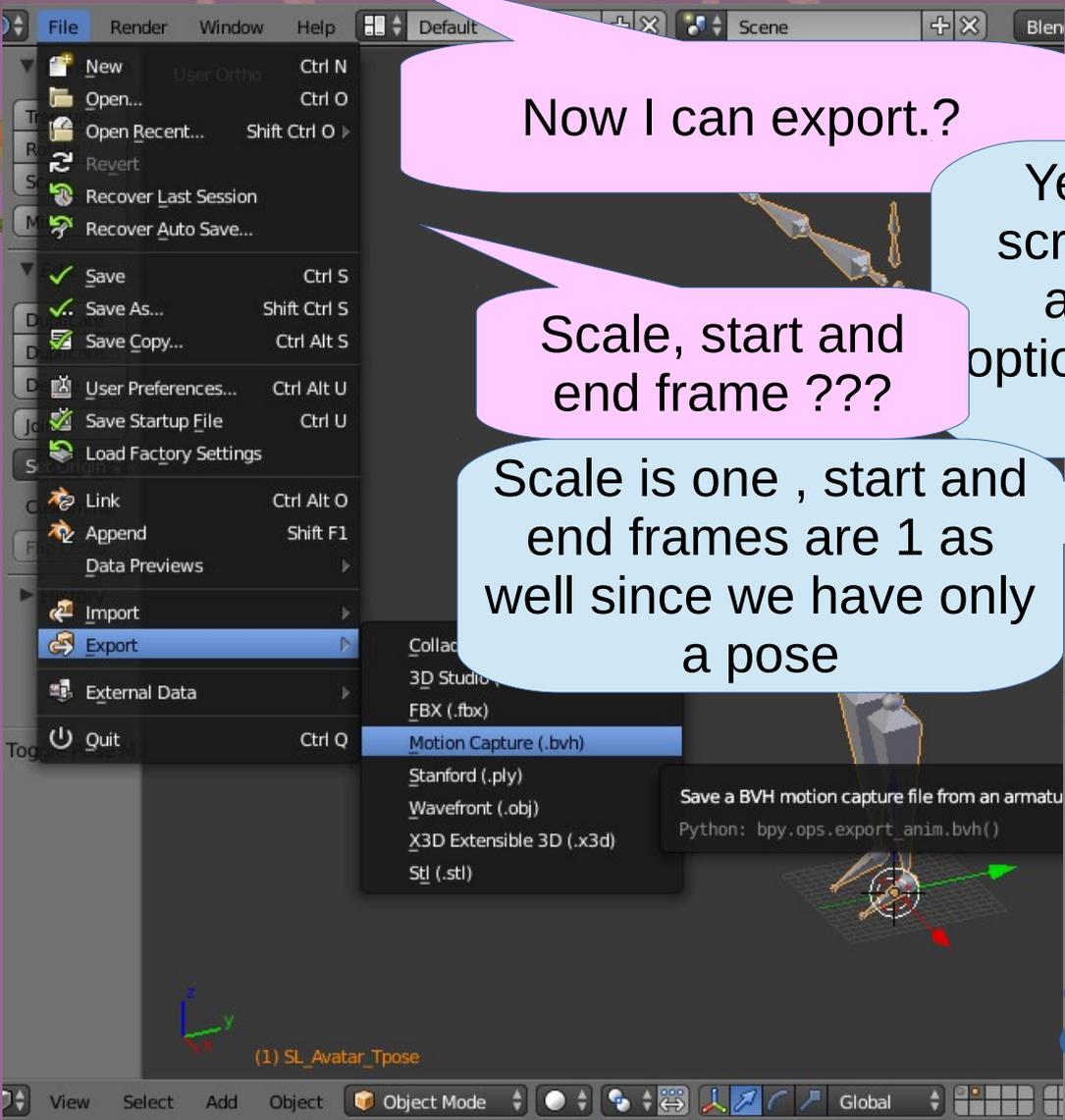


Here we have our imported tpose.

Note that he stand up with Z.  
( standard blender ).  
What you need to do is rotate it x-  
90degree for compatibility with  
opensim .



# ~BENTO~ animation

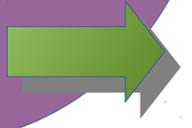
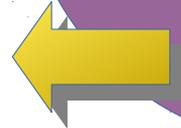
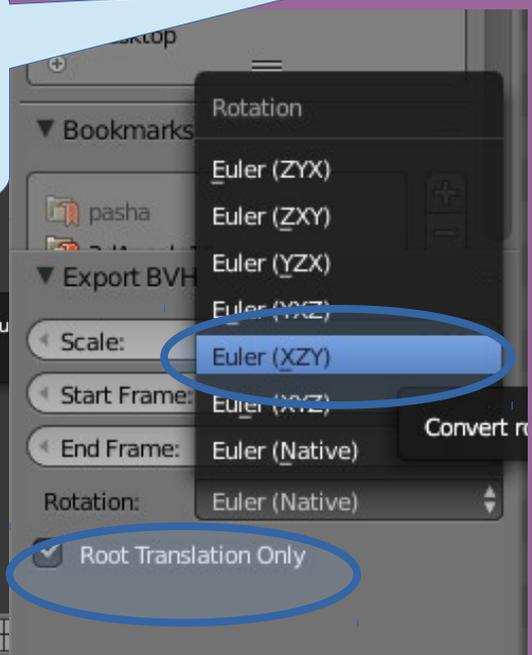


Now I can export.?

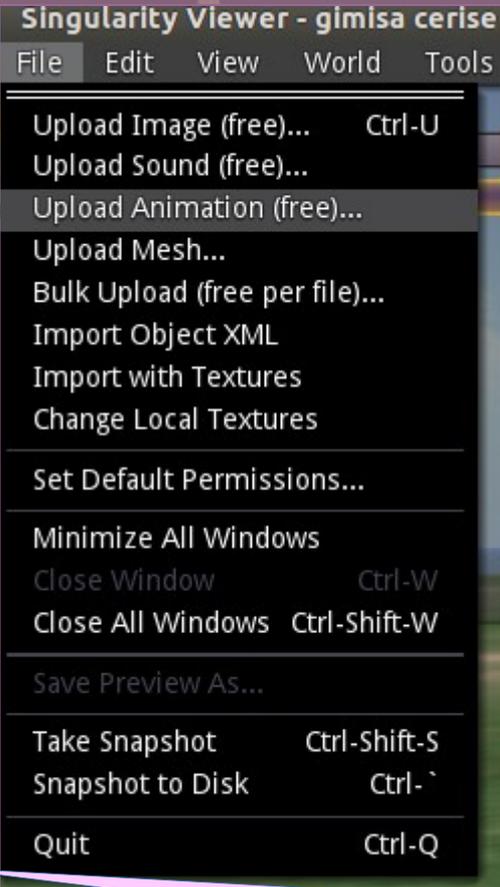
Scale, start and end frame ???

Scale is one , start and end frames are 1 as well since we have only a pose

Yes but on next screen , we need to apply the proper options for rotation and root location .



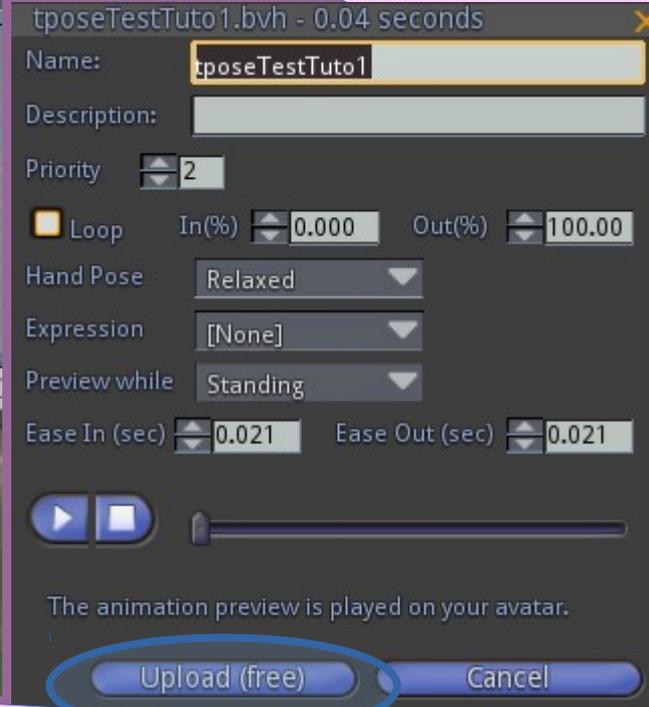
# ~BENTO~ animation



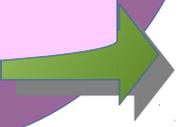
Now It works. Great ,  
what shall I do with  
priority and so on...?



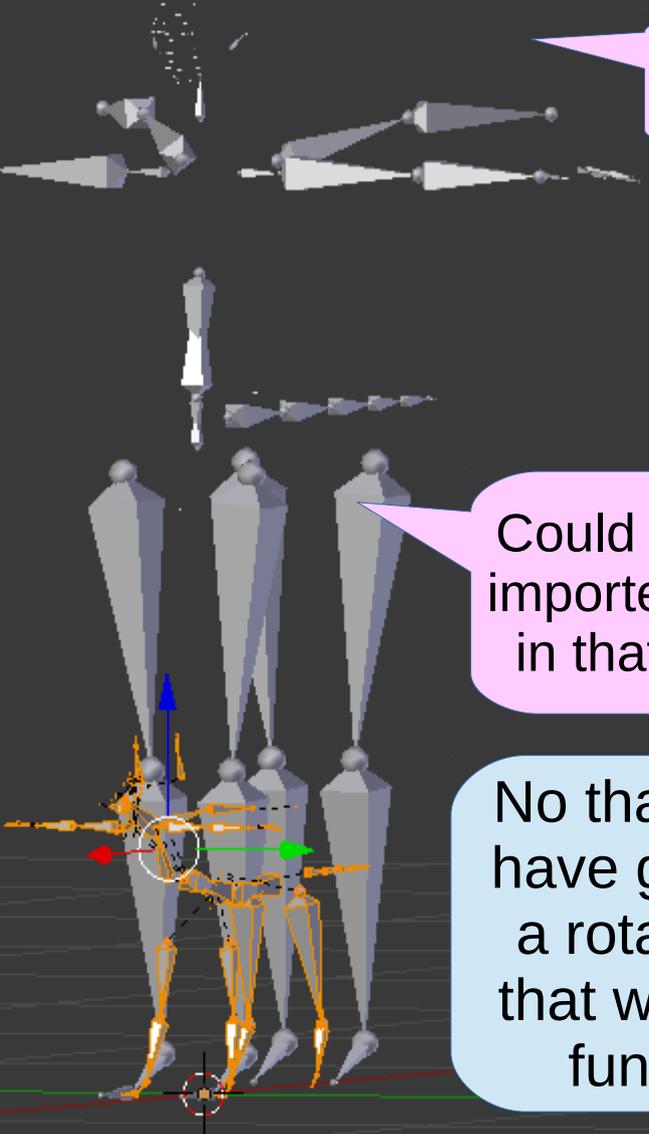
Well we leave it at that  
for now we will discuss  
them when we try our  
REX-BENTO



So I need to remember my armature to face up on Z. And to export  
with root translation only and euler rotation xZy.



# ~BENTO~ amature



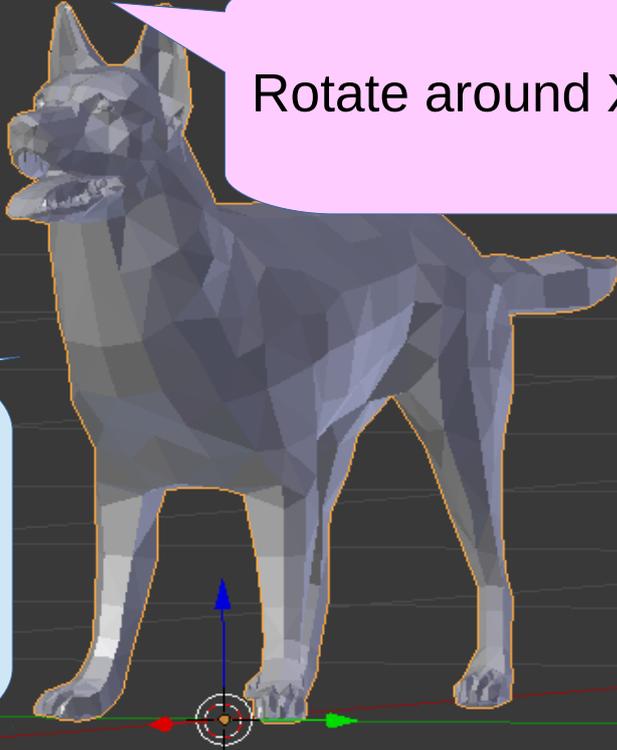
Now our armature is not at all the same way for REX!!!!

No we have to set it right for animation you see.



Could we have imported the rig in that way .?

No that would have given us a rotate dog that would be funny!!!



Rotate around X -90deg.



# ~BENTO~ amature



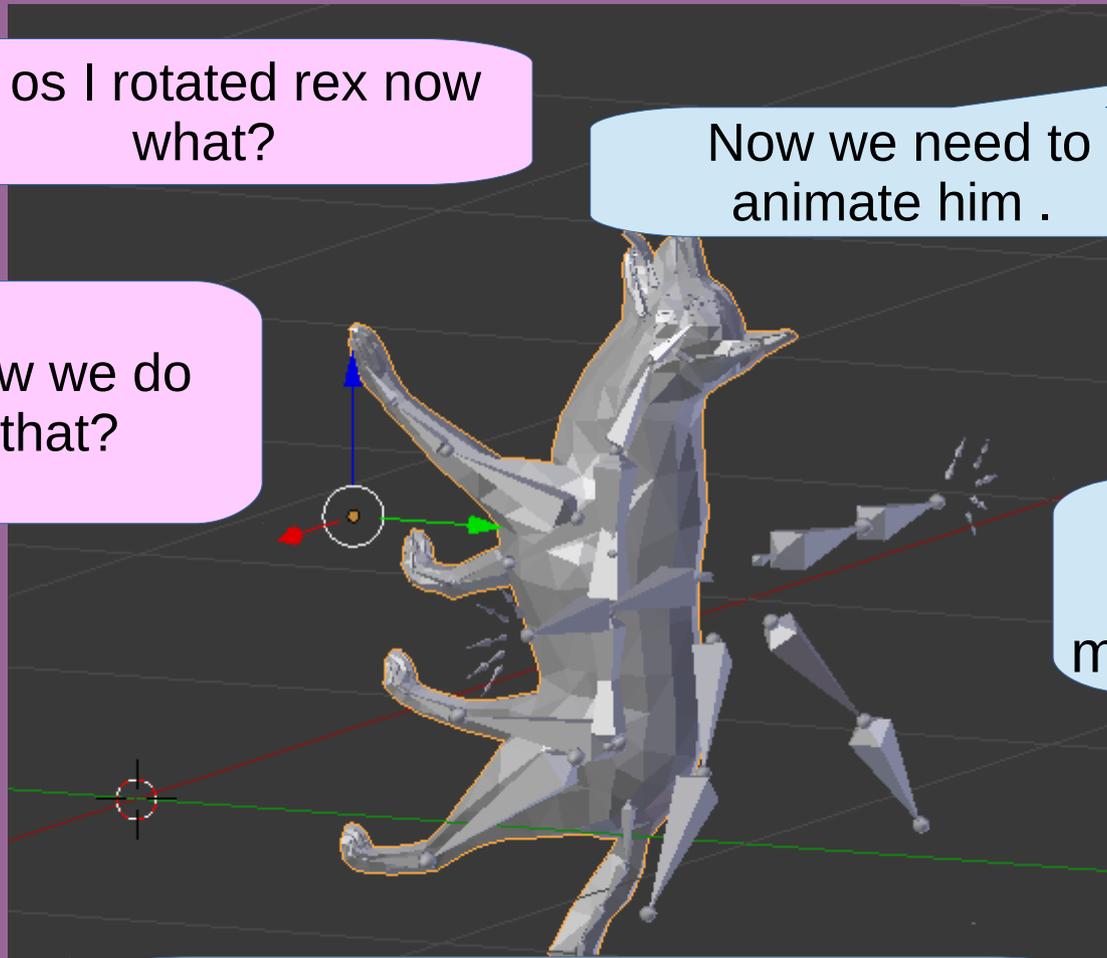
Ok os I rotated rex now what?

How we do that?

Now we need to animate him .



We need to find a walk model for dog .

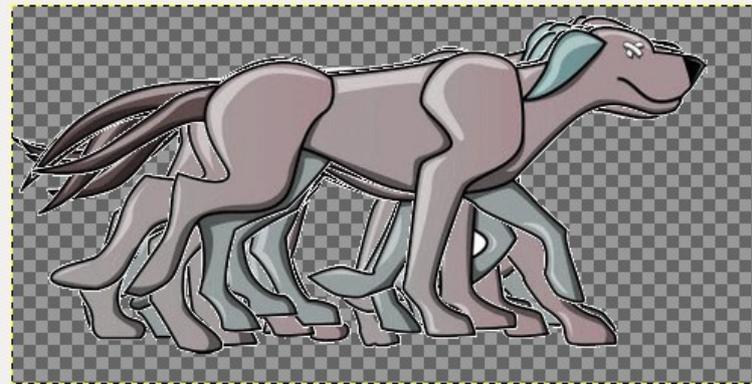


Ref:dog walk gif

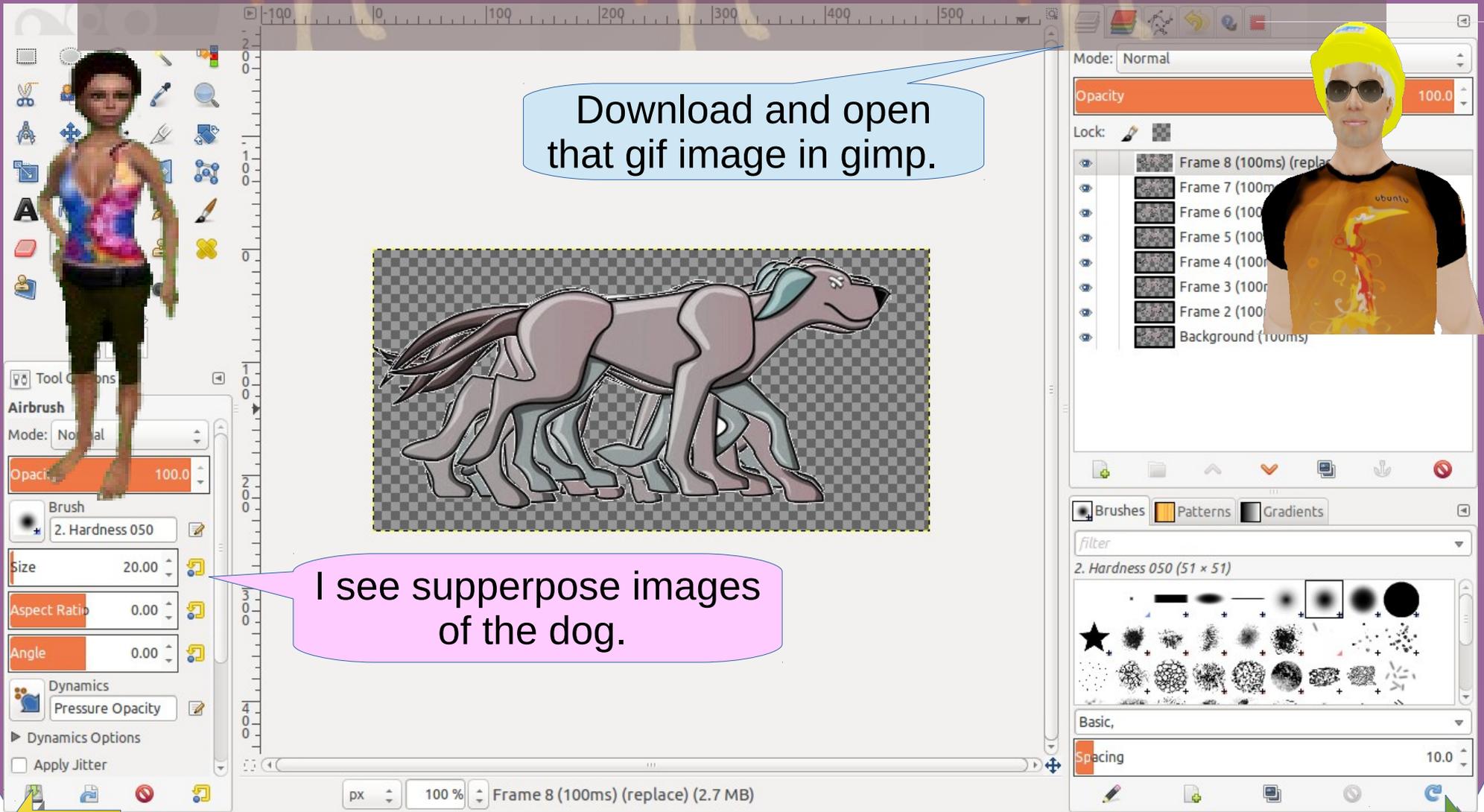


# ~BENTO~ amature

Download and open that gif image in gimp.



I see supperpose images of the dog.



# ~BENTO~ amature



The screenshot shows the Photoshop interface with several key elements and annotations:

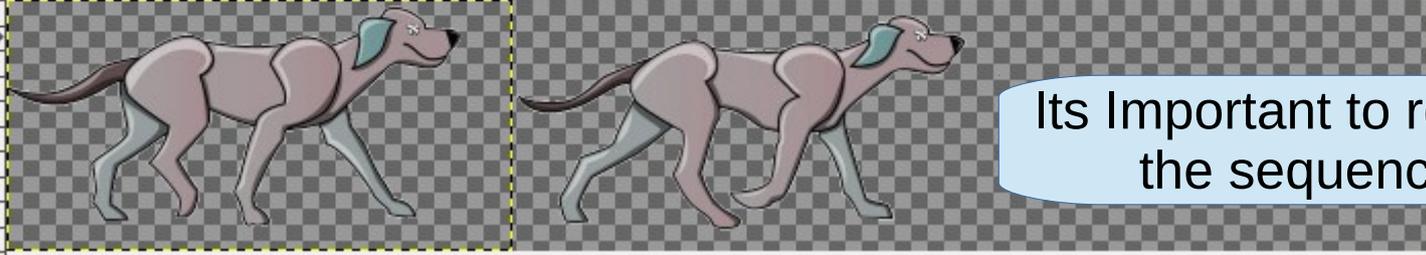
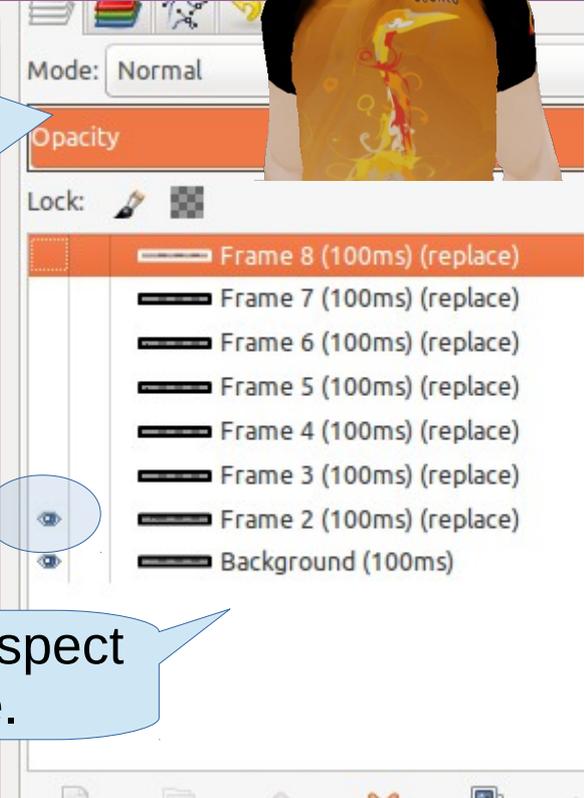
- Menu:** The 'Image' menu is open, with 'Canvas Size...' highlighted. A blue arrow points from this menu item to the 'Set Image Canvas Size' dialog box.
- Dialog Box:** The 'Set Image Canvas Size' dialog is open, showing 'Canvas Size' with 'Width: 493\*8' and 'Height: 250'. A blue speech bubble above it says: "We will change the layout of that image so the frame are side by site." (Note: 'side by site' is a typo for 'side by side').
- Layers Panel:** The Layers panel on the right shows a sequence of frames: 'Frame 8 (100ms)', 'Frame 7 (100ms)', 'Frame 6 (100ms)', 'Frame 5 (100ms)', 'Frame 4 (100ms)', 'Frame 3 (100ms) (replace)', 'Frame 2 (100ms) (replace)', and 'Background (100ms)'. A yellow character wearing a yellow hard hat and sunglasses is overlaid on the top frame.
- Annotations:** A pink speech bubble at the bottom left says: "So I have to change the canvas size, 8 frames , 8x Original size." A yellow arrow points from this bubble to the 'Canvas Size' dialog. A green arrow at the bottom right points towards the 'Spacing' section of the brush panel.
- Tools and Panels:** The left toolbar shows various tools. The 'Tool Options' panel shows 'Airbrush' with 'Mode: Normal' and 'Opacity' set to 100.0. The 'Brushes' panel shows '2. Hardness 050' with 'Size: 20.00', 'Aspect Ratio: 0.00', and 'Angle: 0.00'.

# ~BENTO~ amature

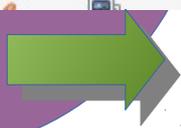
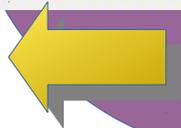


So I turn all frame off and one by one I turn them and slide them forward. .

And in turn frame by frame we move the frame forward to have a sequence of images representing the animation we want to do .



Its Important to respect the sequence.

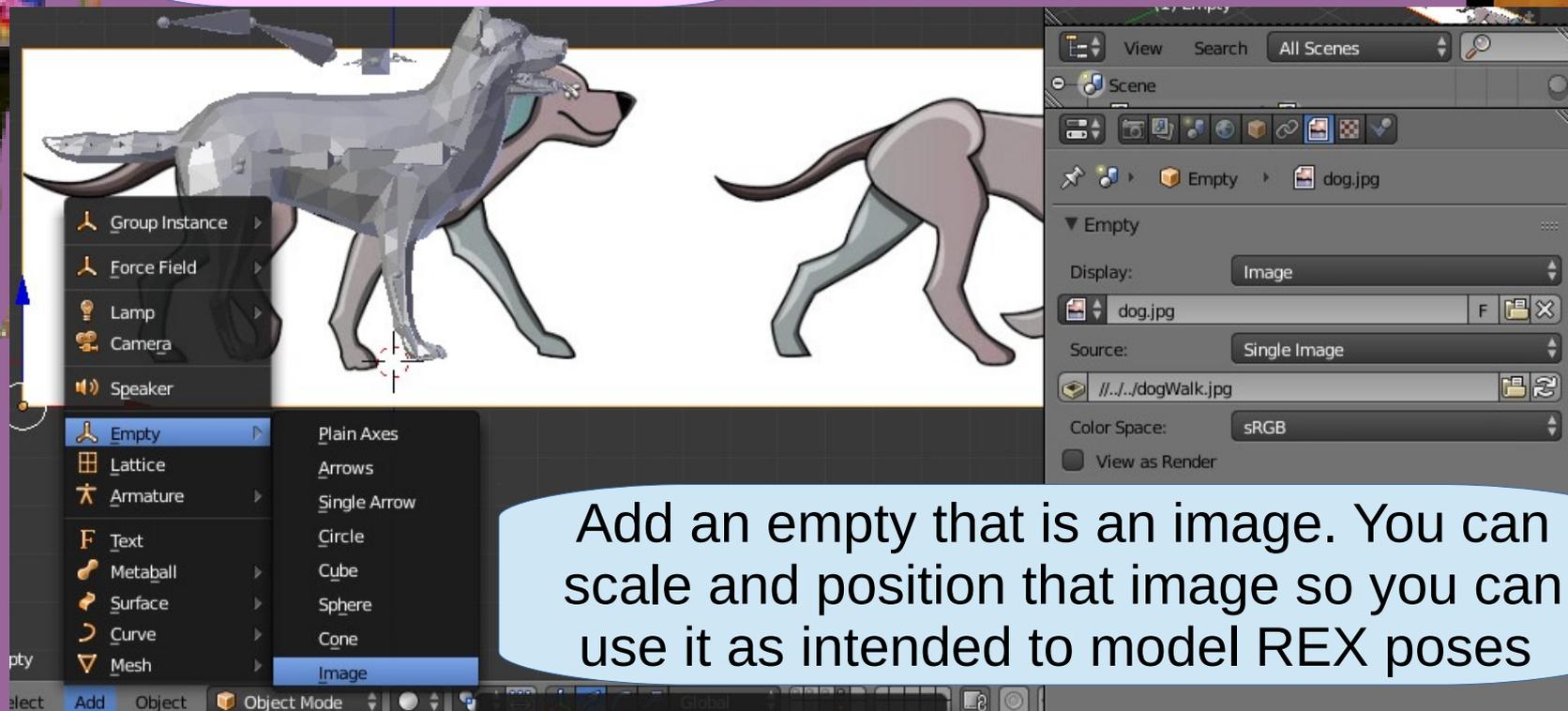


# ~BENTO~ amature



And how???

And use it as model helper to animate Rex



Add an empty that is an image. You can scale and position that image so you can use it as intended to model REX poses

Ref:dog walk gif



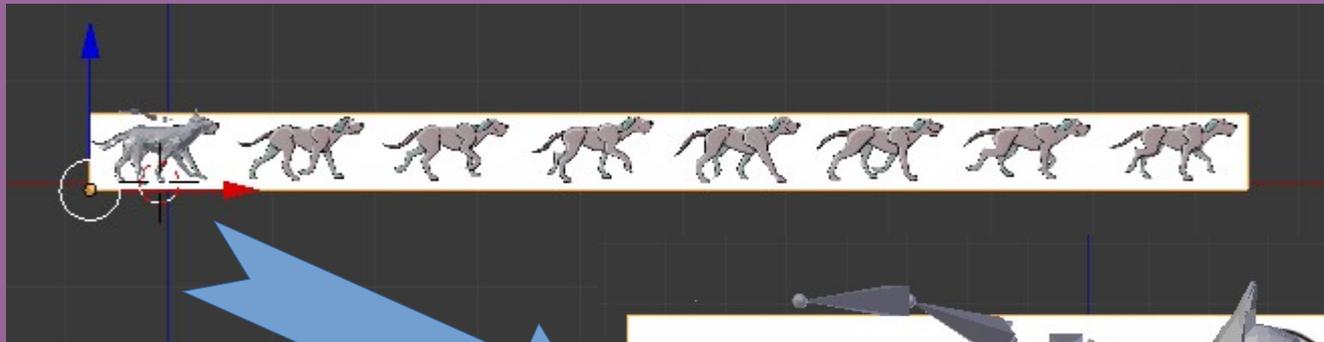


# ~BENTO~ amature

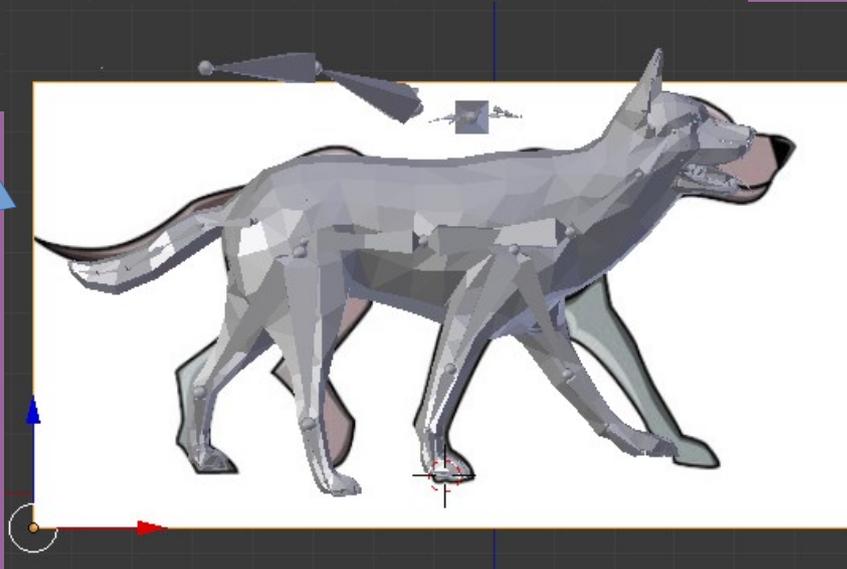


I dont get it??

Look this is all the gif  
frame for the dog walk.



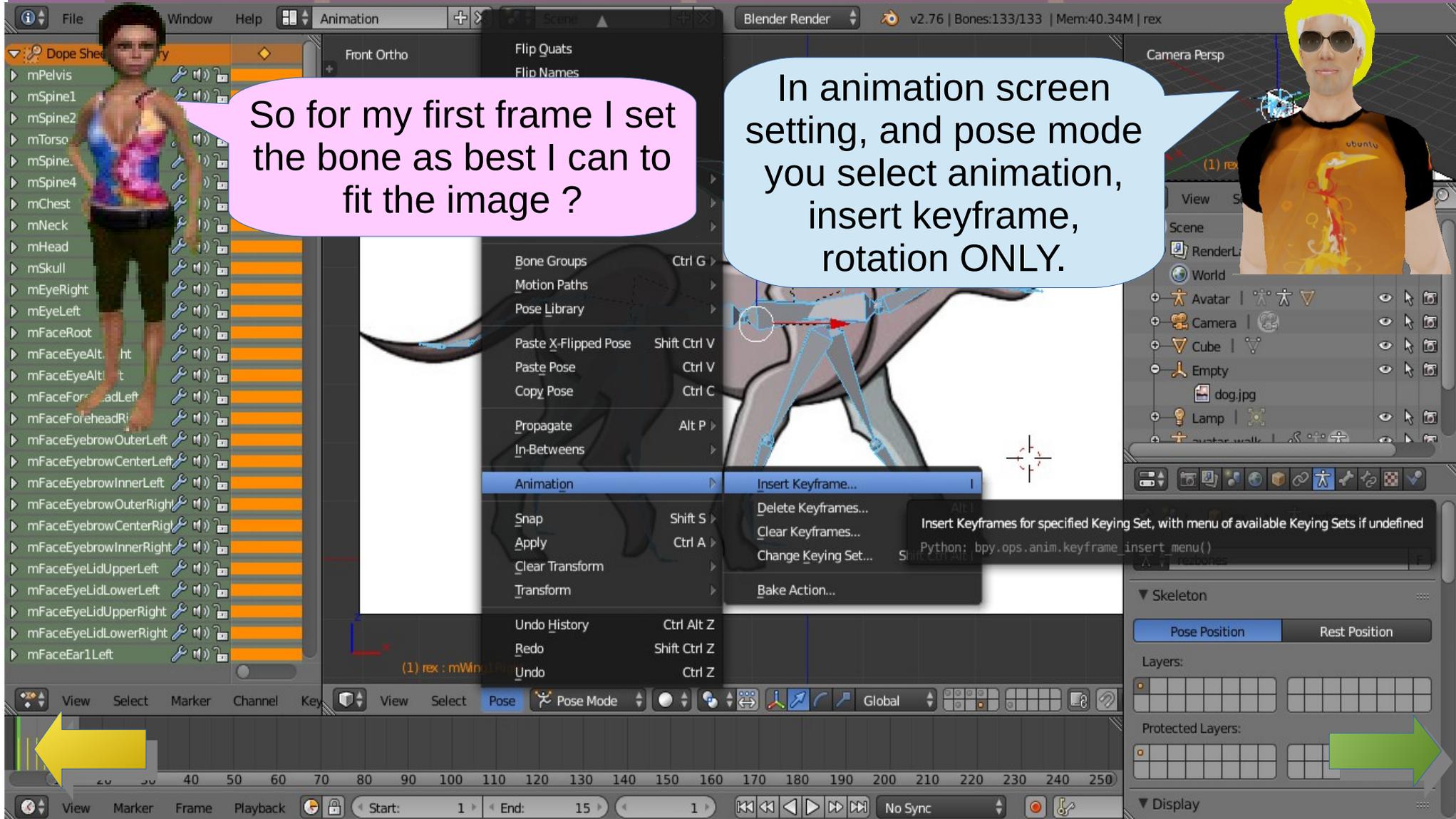
I see so you  
position Rex to  
each of those frame  
as best as possible



# ~BENTO~ amature

So for my first frame I set the bone as best I can to fit the image ?

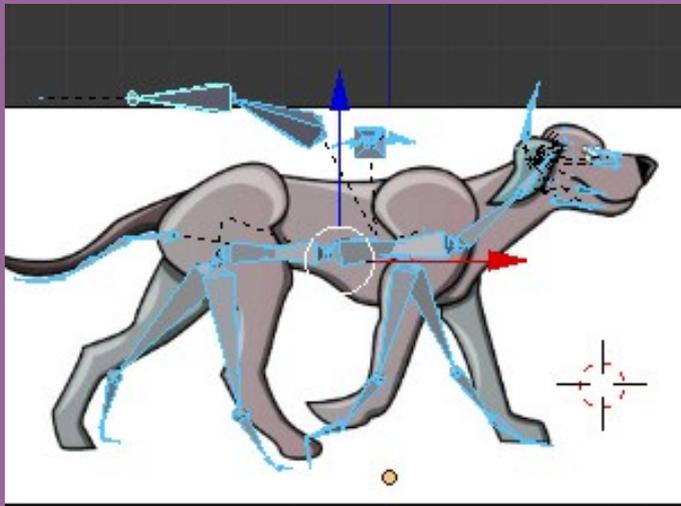
In animation screen setting, and pose mode you select animation, insert keyframe, rotation ONLY.



# ~BENTO~ amature



Then on frame 2, I repeat the process for the next positions?



Well I suggest you leave a frame between so the movement is smoother. So frame 3 is next and 5 and so on till 15 frames are created.

What happen in between the frame we dont define?

Blender extrapolate the movment. So that you get a smooth transition.



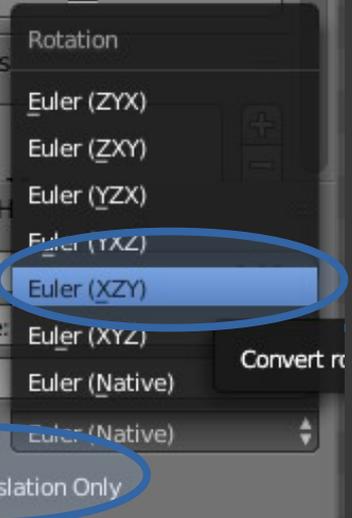
# ~BENTO~ amature



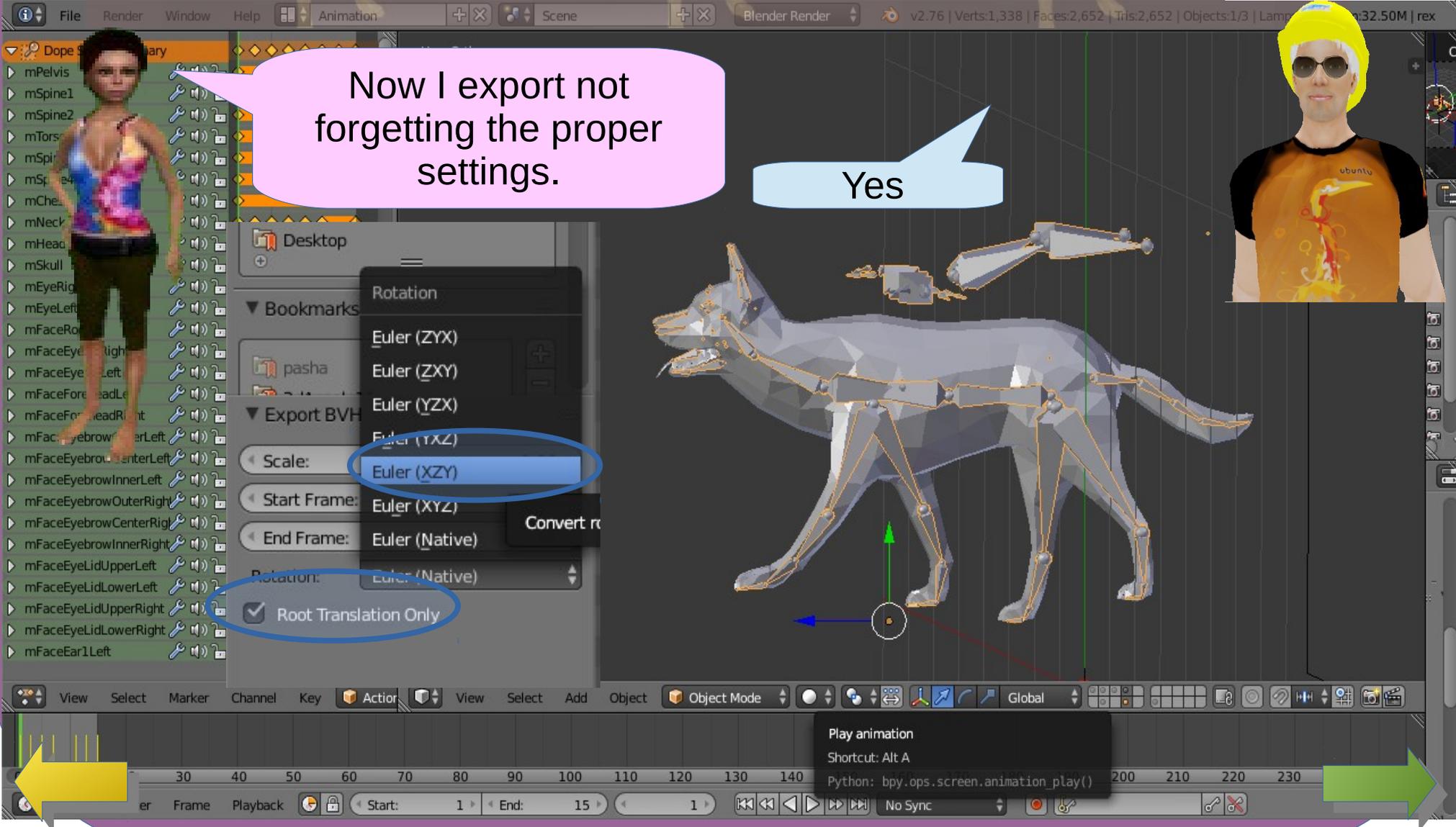
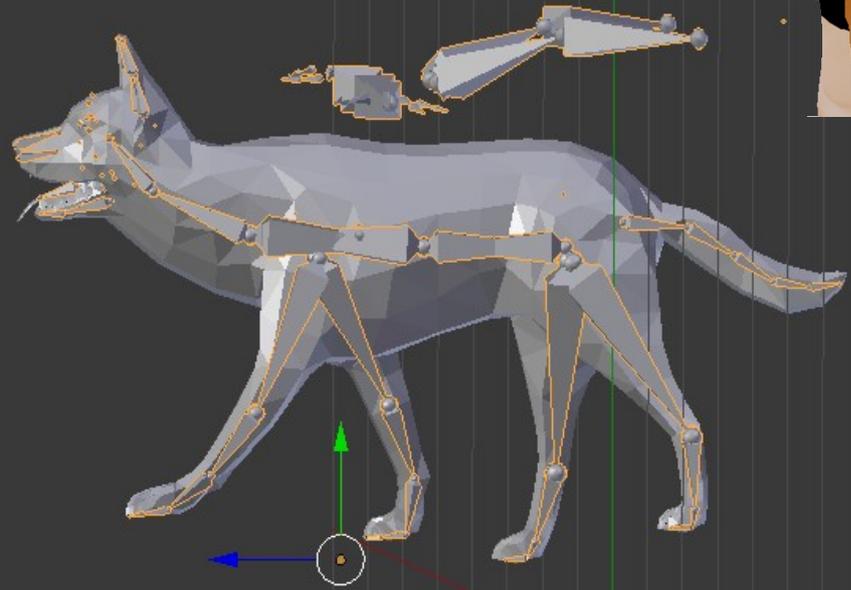
# ~BENTO~ amature

Now I export not forgetting the proper settings.

Yes



Rotation:  
Euler (ZYX)  
Euler (ZXY)  
Euler (YZX)  
Euler (TXZ)  
**Euler (XZY)**  
Euler (XYZ)  
Euler (Native) Convert r  
Rotation: Euler (Native)  
 Root Translation Only



The main Blender interface showing the 3D viewport, the Outliner panel on the left, the Properties panel on the right, and the Timeline at the bottom. The interface includes various icons for navigation and editing.



Play animation  
Shortcut: Alt A  
Python: bpy.ops.screen.animation\_play()

# ~BENTO~ animation



Singularity Viewer - gimisa cerise

File Edit View World Tools

- Upload Image (free)... Ctrl-U
- Upload Sound (free)...
- Upload Animation (free)...
- Upload Mesh...
- Bulk Upload (free per file)...
- Import Object XML
- Import with Textures
- Change Local Textures
- Set Default Permissions...
- Minimize All Windows
- Close Window Ctrl-W
- Close All Windows Ctrl-Shift-W
- Save Preview As...
- Take Snapshot Ctrl-Shift-S
- Snapshot to Disk Ctrl-`
- Quit Ctrl-Q



Now I upload inworld my  
bvh file as animation?

tposeTestTuto1.bvh - 0.04 seconds

Name: tposeTestTuto1

Description:

Priority: 2

Loop In(%) 0.000 Out(%) 100.00

Hand Pose: Relaxed

Expression: [None]

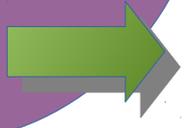
Preview while: Standing

Ease In (sec) 0.021 Ease Out (sec) 0.021

No no

What is wrong ????

Time scaling . Opensim works on a  
30 frames seconds. So you dog will  
do his walk sequence in half a  
second way too fast for a natural dog  
walk.



# ~BENTO~ animation



HIERARCHY  
ROOT pelvis

{



```
    OFFSET -0.092699 0.000000 0.403191  
    CHANNELS 6 Xposition Yposition Zposition Xrotation Yrotation Zrotation  
    JOINT mSpine1  
    {
```

```
        OFFSET -0.022553 0.000000 0.014078  
        CHANNELS 3 Xrotation Yrotation Zrotation  
        JOINT mSpine2  
        {
```

```
            OFFSET -0.198318 0.000000 0.000000  
            CHANNELS 3 Xrotation Yrotation Zrotation  
            JOINT mTorso
```

```
                OFFSET 0.198318 0.000000 0.000000  
                CHANNELS 3 Xrotation Yrotation Zrotation  
                JOINT mSpine3  
                {
```

```
                    OFFSET 0.242775 0.000000 0.015368  
                    CHANNELS 3 Xrotation Yrotation Zrotation  
                    JOINT mSpine4  
                    {
```

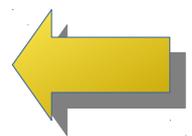
```
                        OFFSET -0.242775 0.000000 -0.015368  
                        CHANNELS 3 Xrotation Yrotation Zrotation  
                        JOINT mChest
```



Open the bvh file create with you text editor of choice. ( notepad )

So this is a regular text file that I can modify?

Yes exacly.



# ~BENTO~ animation

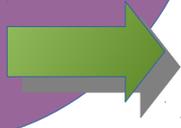
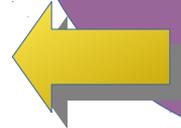


I can search for word "MOTION"?

At one point you will see a change in the file structure as follow .

```
907  
908  
909  
910  
911  
912  
913  
914 }  
915 MOTION  
916 Frames: 15  
917 Frame Time: 0.041667  
918 -0.092699 0.000000 0.403191 -0.000000 0.000000 -0.000000 -0.000000 0.000000 -0.000000 -0.000000  
0.000001 -0.000000 0.000000 0.000001 0.000000 0.000000 -0.000000 -0.000000 0.000075 45.49048  
0.000001 -0.000000 0.000001 0.000000 -0.000000 0.000001 0.000001 -0.000000 -0.000001 0.000000  
-0.000000 -0.000000 0.000000 -0.000000 -0.000000 0.000000 -0.000000 -0.000000 0.000000 -0.00  
-0.000000 0.000000 -0.000000 -0.000000 0.000000 -0.000000 -0.000000 0.000000 -0.000000 -0.00  
0.000000 0.000000 -0.000000 0.000000 0.000000 0.000002 -0.000001 -0.000001 -0.000002 0.000000  
0.000000 0.000000 -0.000000 0.000000 0.000002 -0.000000 -0.000000 0.000001 -0.000001 -0.0000  
-0.000000 0.000000 -0.000000 -0.000000 0.000000 0.000000 0.000002 0.000000 0.000000 0.000000  
0.000000 0.000000 0.000001 0.000000 0.000000 0.000001 0.000000 0.000002 0.000000 -0.000000 0
```

Yes you have the frame counts you created and you have the time per frame. Change it to the value shown ( .041667 )



# ~BENTO~ animation



Singularity Viewer - gimisa cerise

File Edit View World Tools

- Upload Image (free)... Ctrl-U
- Upload Sound (free)...
- Upload Animation (free)...
- Upload Mesh...
- Bulk Upload (free per file)...
- Import Object XML
- Import with Textures
- Change Local Textures
- Set Default Permissions...
- Minimize All Windows
- Close Window Ctrl-W
- Close All Windows Ctrl-Shift-W
- Save Preview As...
- Take Snapshot Ctrl-Shift-S
- Snapshot to Disk Ctrl-`
- Quit Ctrl-Q

tposeTestTuto1.bvh - 0.04 seconds

Name: tposeTestTuto1

Description:

Priority: 2

Loop In(%) 0.000 Out(%) 100.00

Hand Pose: Relaxed

Expression: [None]

Preview while: Standing

Ease In (sec) 0.021 Ease Out (sec) 0.021

The animation preview is played on your avatar.

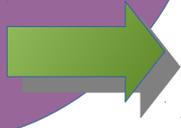
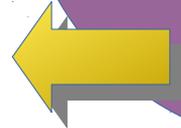
Upload (free) Cancel

And now I can import right?

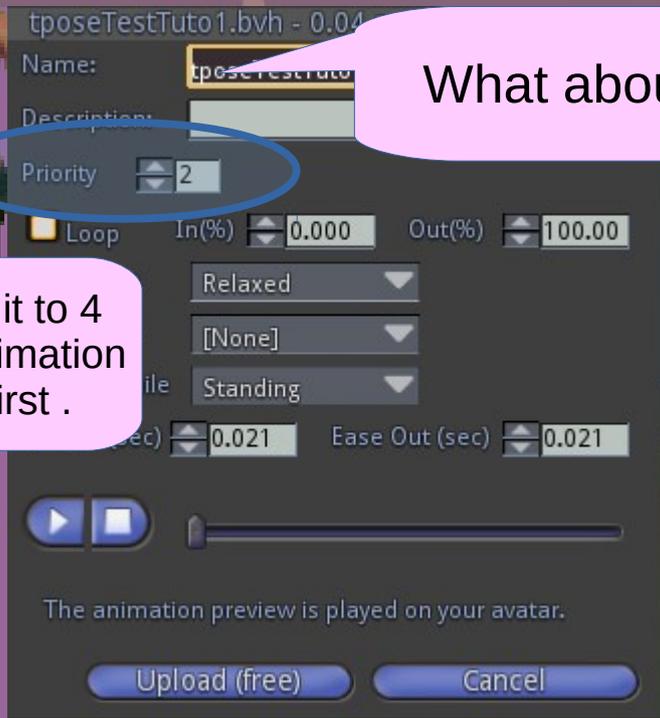


Yap , since its a walk you want loop on

What about priority?



# ~BENTO~ animation



What about priority?

So I set it to 4 so my animation come first .

Walk in opensim / second life has the following priority: 0,3

Well since we script an animation override with REX, priority does not matter so here 2 is good if we eventually want something else to animate it while walking.  
But yes if you wanted your walk to take over the default one on an object you would do set it to high. But personally in any case I leave it to 2 and use script to control the current animation.

|      |                                      |                 |       |                    |  |
|------|--------------------------------------|-----------------|-------|--------------------|--|
| type | c541c47f-e0c0-058b-ad1a-d6ae3a4584d9 | avatar_type.bvh | 2     | Yes                | Also plays the typing sound when started   |
| walk | 6ed24bd8-91aa-4b12-ccc7-c97c857ab4e0 | avatar_walk.bvh | 3 & 0 | Yes <sup>[1]</sup> | Automatically replaced by female_walk if female shape is worn (priority 3 for pelvis and legs, 0 for everything else)<br>Also triggers express_wink_emote. Sent with |

# ~BENTO~ animation



What about poses?

Use the link on the image to see the video of the result inworld.

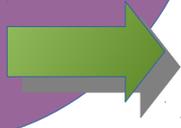
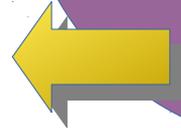


Poses only difference is it has only one frame.



CLIC TO OPEN VIDEO

So I can do stand, claw, tail wag, sit sleep, be nice !!!!



# ~BENTO~ amature

## SUMMARY

- Starting from the REX BENTO rig project.
- Make sure you turn REX X -90degree for animation.
- Find a model of animation (gif )suitable for your project.
- Use gimp to decompose the gif into frames.
- Use EMPTY object to post you gif image so you can copy the poses for you armature location.
- Use animation screen presentation and insert animation keyframes for ROTATION only .
- play you animation to validate that it look good . Correct as needed.
- Export the BVH file out from blender.
- Edit the file to change the frame time.
- Import inword as animation with loop and priority set.

GiMiSa 180407

