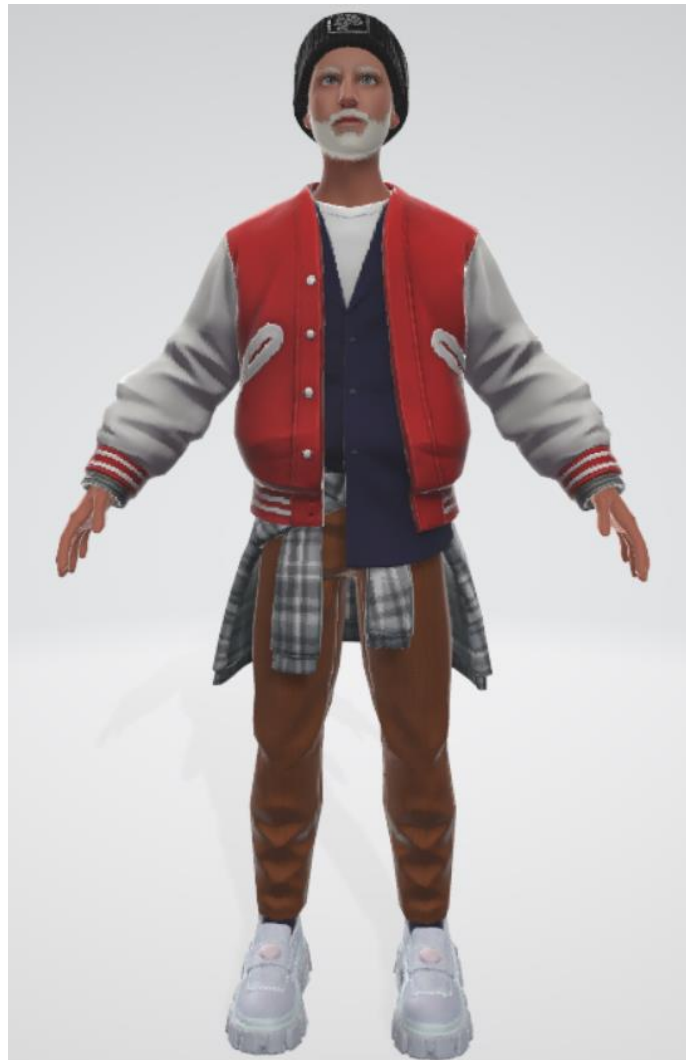


# Teddywaddy Code Club

## Activity 6d

### Create an Avatar



# Create an Avatar

For computer gaming or any other form of virtual world, what many people call an Avatar is simply an on-screen graphical representation of maybe a real person or an imaginary person or some character. The main requirement for such a representation is that it must be able to be animated and otherwise manipulated, through code.

For the purposes of learning three.js it is useful to create an Avatar to be used in some sample programs.

From a coding point of view, an Avatar is a file. There are several file types that can be used to represent an Avatar. The recommended file types are FBX and GLB (and GLB is the binary version of a GLTF file).

Once an Avatar file is loaded into three.js it is relatively easy to see all the information that is stored inside the file and begin to understand the data structure.

To create an Avatar of yourself, you will need a computer with a camera.

The sequence of steps is as follows.

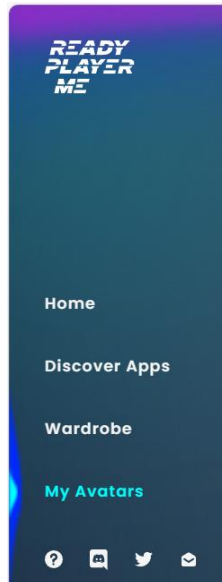
1. Create an Avatar using Ready Player Me and save as a GLB file. The Avatar does not have any animation at this stage.
2. Import the GLB file into Blender.
3. Export the file from Blender as an FBX file with some specific settings. FBX file type is required for the next stage, which is to apply some animation using Mixamo. Unfortunately, Mixamo does not yet support GLB files so this stage needs to be completed using FBX file type.
4. Import the FBX file into Mixamo and add any required animations.
5. Export from Mixamo as an FBX file. This file type can be used directly by three.js, however sometimes the GLB file will perform better.
6. Import the FBX file into Blender.
7. Export the file from Blender as a GLB.

## Start with Ready Player Me

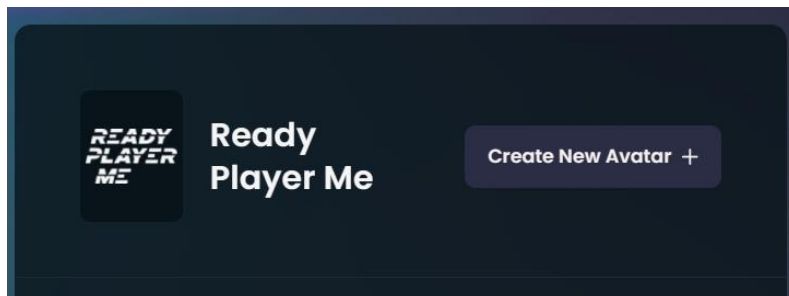
Navigate to <https://readyplayer.me>

You will need to create an account, but there is no cost for this.

Once you sign in there should be a menu similar to the following.



Choose My Avatars and there should be a button to create a new Avatar.



Click on Create New Avatar +

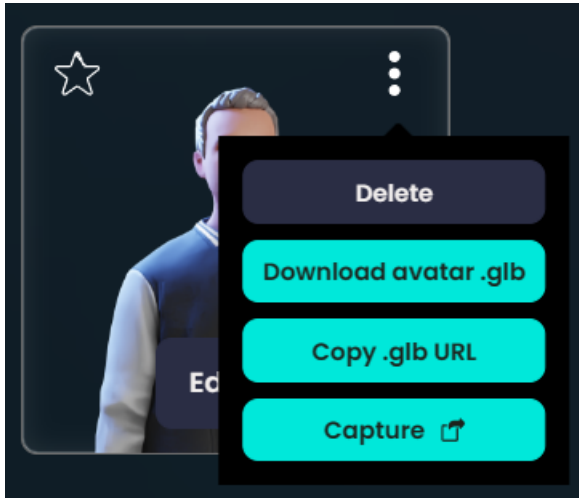
Continue following the instructions, including taking a selfie.

Choose some hairstyles, clothes, shoes and so on.

Finally, click on Enter Hub.

You should see your new Avatar.

Click on the three dots (vertical ellipsis) and there should be a pop-up context menu.



Choose Download avatar .glb

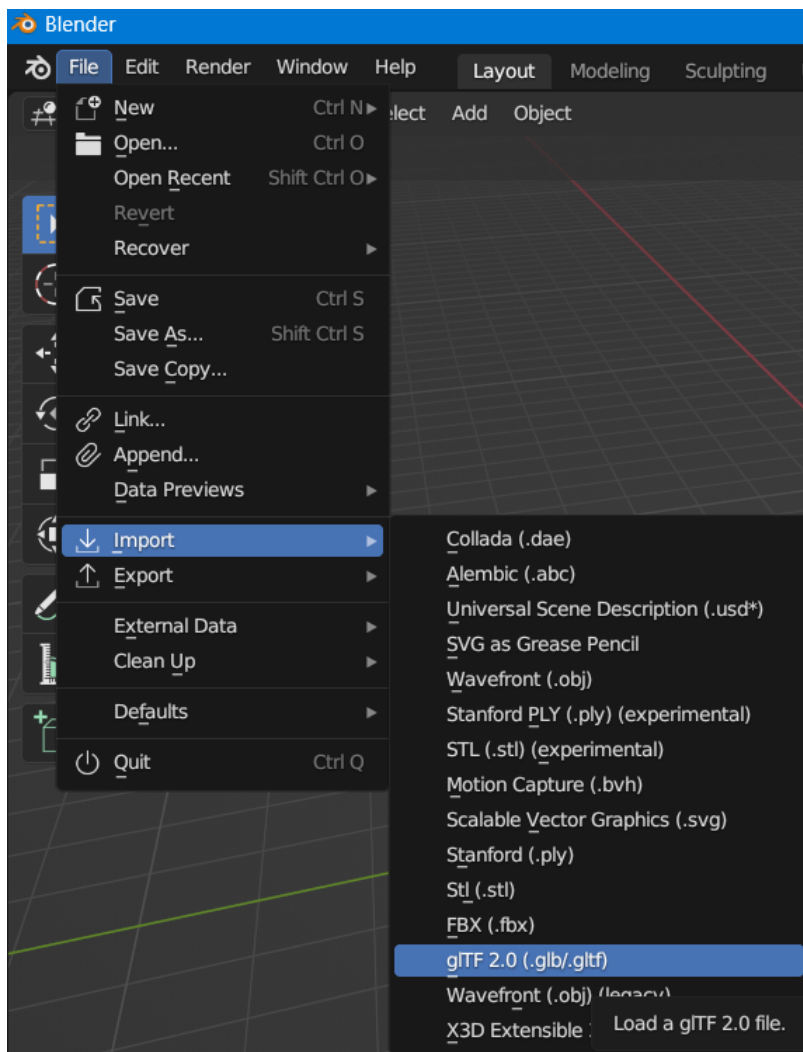
A file will download with a name something like *6506a0c07a4b5e00b4dbbdea.glb*

This file can be loaded into three.js, but does not yet have any associated animations. The 3D Viewer in Windows can view this file as can many graphics programs such as Blender.

The Mixamo online application can add animations to this avatar/character, but it can only import FBX files. So, the next step is to convert the GLB file into an FBX file.

# Import into Blender

With Blender open, choose File | Import | glTF 2.0



Choose the GLB file downloaded from Ready Player Me.

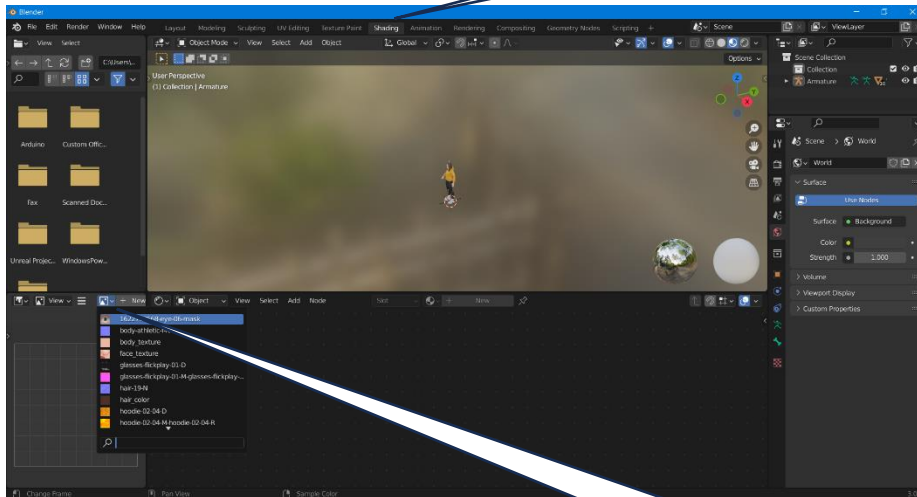
Now to save as an FBX file there are some optional steps. When you see an Avatar/Character displayed with skin, clothes, hair and so on, many of these appearances are what are called Textures.

Associated with the character just imported there will be a whole set of textures, which are just images. To proceed, each of those texture image files need to be saved separately.

# Save the Texture files

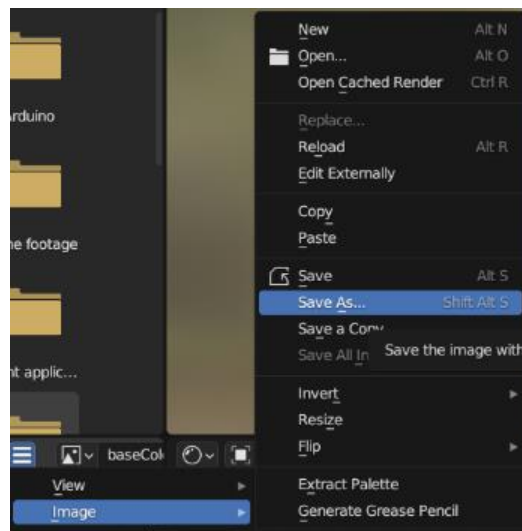
Change to the Shading menu.

Shading



The image drop-down list shows all the textures used in the character.

Save each texture file separately by first selecting it in the image drop-down list, then use the menu bars to choose Save As. Navigate to where the GLB file is and create a new folder called textures to save all these files. It's not strictly necessary to save them all to a separate folder, but good practice and quite informative of how the character's looks are formed.



For the example shown the folder structure and texture files would be as follows.

textures	19/09/2023 5:48 PM	File folder	
6506a0c07a74b5e00b4dbbdea.glb	17/09/2023 4:50 PM	3D Object	2,222 KB
bryan.fbx	19/09/2023 6:08 PM	3D Object	2,124 KB

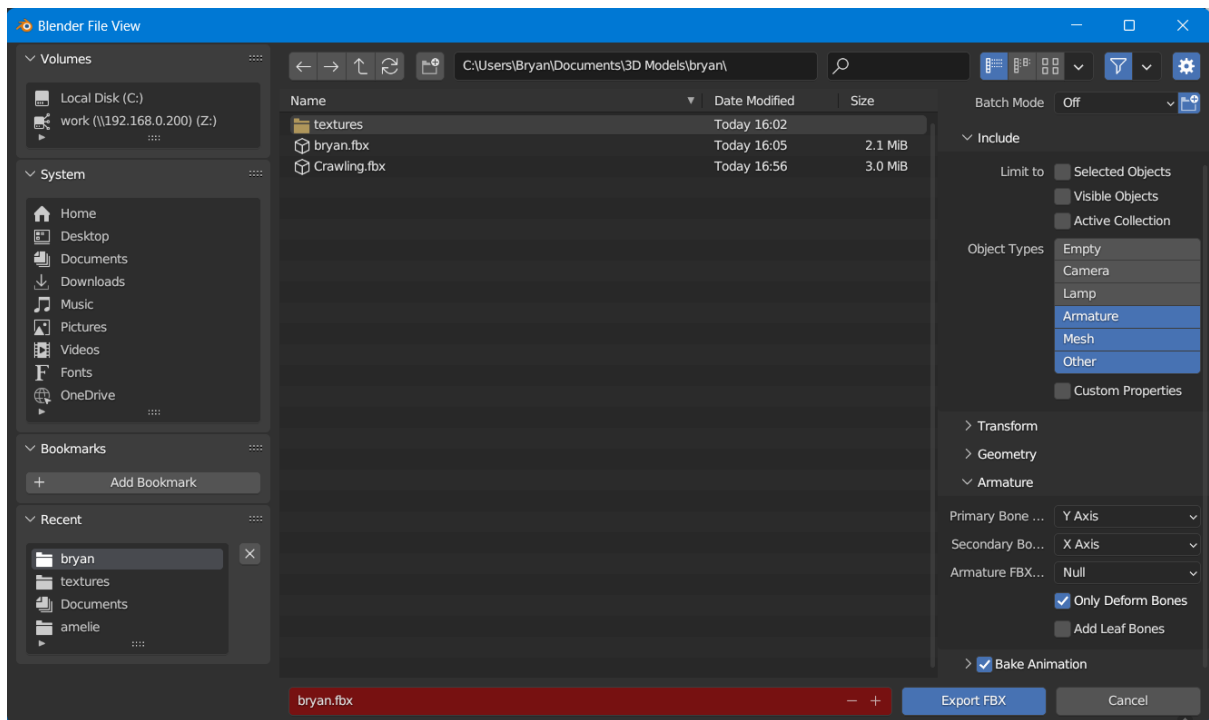
- baseColor.001.jpg
- baseColor.002.jpg
- baseColor.003.jpg
- baseColor.png
- beard-05-N.jpg
- hair-05-N.jpg
- jacket-sport-01-black-C.jpg
- jacket-sport-01-black-M-jacket-sport-01-black-R.jpg
- jacket-sport-01-black-N.jpg
- pants-adventure-01-color03-C.jpg

Now export the character as an FBX file.

## Export as FBX

Choose File | Export | FBX

Set options as shown below.



Choose a folder and filename.

Click on Export FBX

## Open in Mixamo

Go to <https://www.mixamo.com/>

Upload the FBX character

Add animation as required

Download as FBX

## Import into Blender

File | Import | FBX

Export as GLB

File | Export | glTF 2.0