CreateAccess

Learning Guide

Animate 3D Avatars in Unreal Editor for Fortnite

Introduction

An avatar is a representation of a person or character in a digital world. Adding your own animated avatar to a 3D experience is a great way to make it more personalized.

This Guide will show you how to create a personalized avatar with Ready Player Me, configure it for animation in Blender, and apply an animation to it with the Mixamo library. Then, you will learn how to add your animated avatar to an island in Unreal Editor for Fortnite (UEFN).

To achieve the outcomes outlined in this Guide, it is very important that you keep close track of multiple files and use the correct one at each step. We have provided recommended naming conventions to help you keep track of your files.

Video Learning Guide for this Lesson:
https://www.youtube.com/watch?v=W7fAqA76lpk

Contents

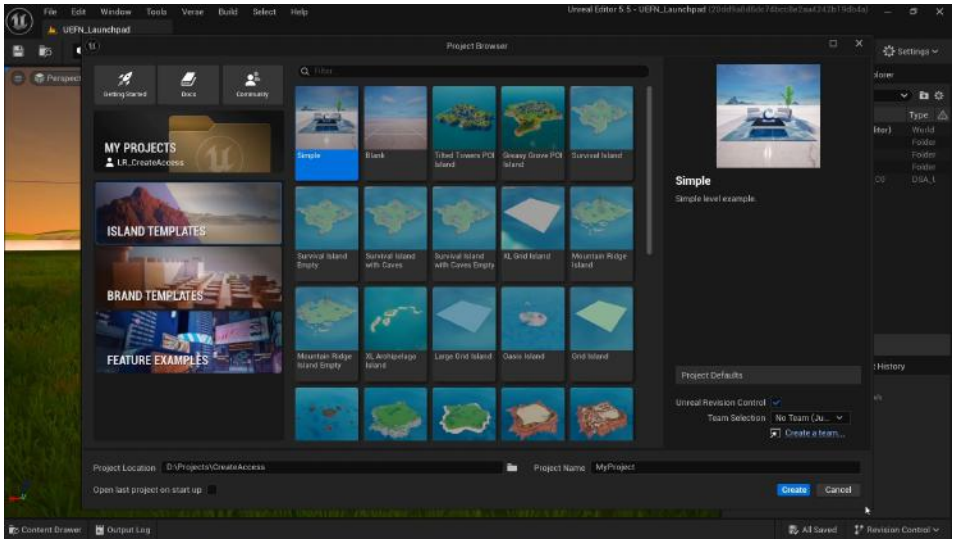
Prior Knowledge Check

To successfully complete this lesson, you should be familiar with the basics of the UEFN User Interface and be comfortable navigating in UEFN. Take a look at the Unreal Editor for Fortnite User Interface Basics to familiarize yourself with the interface.

You can also use the Epic Games Documentation for more detailed information on the UEFN User Interface.

Getting Started

Make sure you have Blender and UEFN installed on your computer. Create a new project in UEFN and have an island ready to import your animations into.



Step 1: Understand avatar components

Preview

Avatars can do a lot to make a 3D experience more unique and engaging. However, avatars, by design, have a lot of components that the creator needs to keep track of. In this section, you will briefly learn about different parts that make up a 3D avatar and how they work.

Experiment

CHARACTER MODEL

A character model is the 3D representation of your avatar on screen. You can think of the model as the "sculpted body" of your avatar. The model can include detailed facial features, clothes, hair, etc. But it cannot be animated to move like a human without a skeleton, and will look plain gray without any textures added.

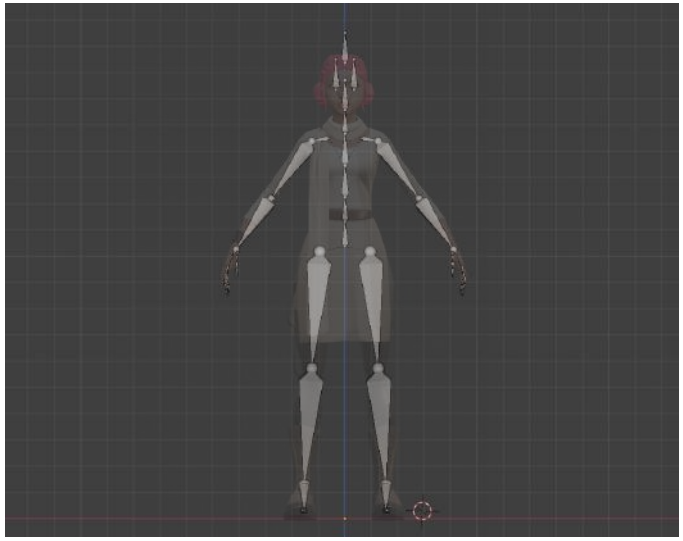
TEXTURES

Textures are image files that define color, detail, or other surface information of a 3D model. A texture can also define how the surface of a model reacts to light (shiny, dull, metallic, etc.). By adding textures to your avatar, you can visualize the color and details of the hair, skin, clothing, etc. Many avatar creators, such as Ready Player Me, add textures to avatars for you.

SKELETON AND BONES

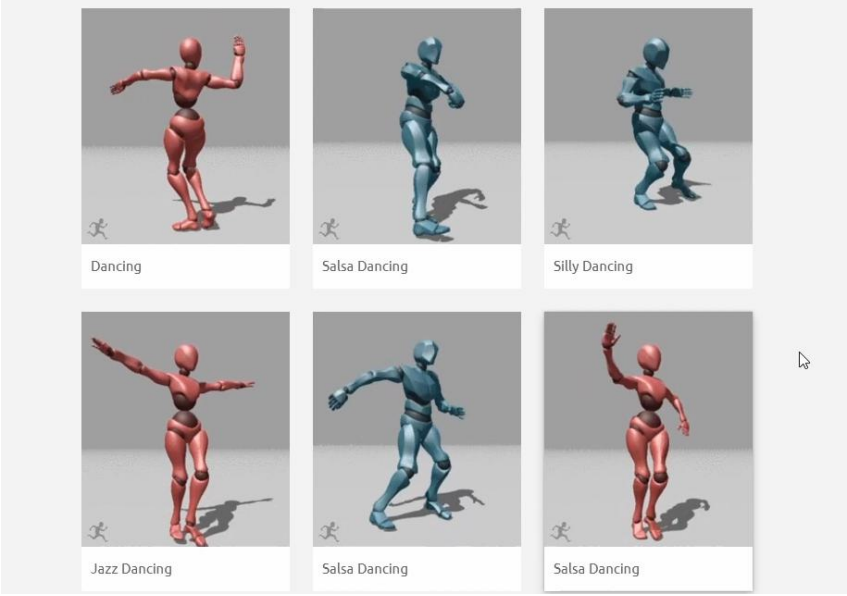
Just like the human body, 3D characters have a collection of bones and joints inside them that form a skeleton. As mentioned above, 3D character models cannot be animated to move their limbs like humans until they have skeletons.

With the skeleton, each joint can be animated to move the corresponding parts of the body. Creators can animate their 3D avatars by animating every single joint by hand, or they can use 3D animation libraries like Mixamo that will create a skeleton for a character automatically and allow the creator to decide how to animate it by providing a library of options.



ANIMATION FILES

It is important to keep in mind that animations and skeletons are closely linked together. When you download an animation file online or create your own animation for “Character A,” that animation will be dependent on the skeleton of “Character A.” This means that the same animation file cannot be used on a different character - for example, “Character B.”



Step 2: Create an avatar in Ready Player Me

Preview

The first step in adding an animated avatar to your UEFN island is to create the avatar. To do this, you can use Ready Player Me, a free web-based avatar creation tool that offers a multitude of customization options for users.

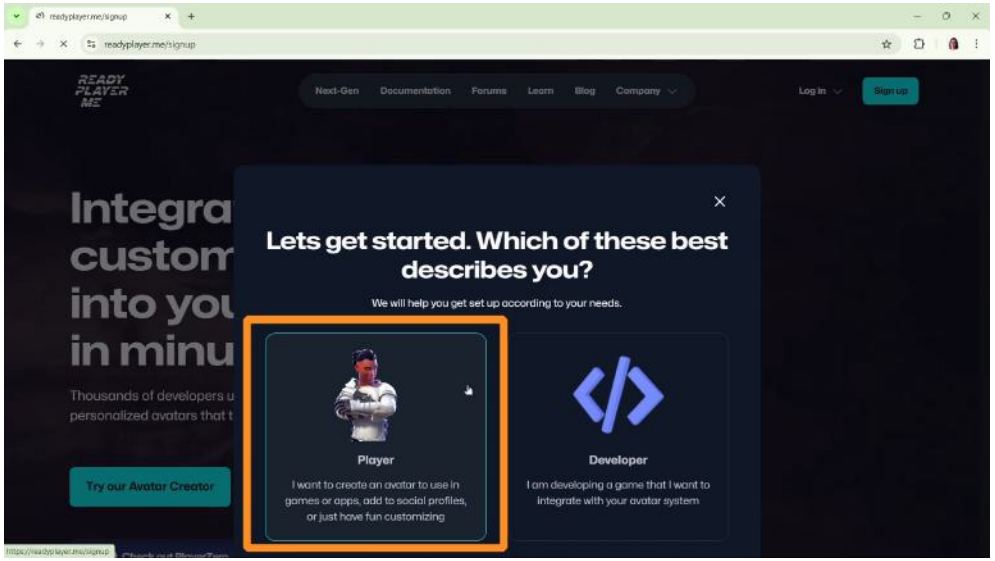
Experiment

READY PLAYER ME

Go to the https://readyplayer.me website.

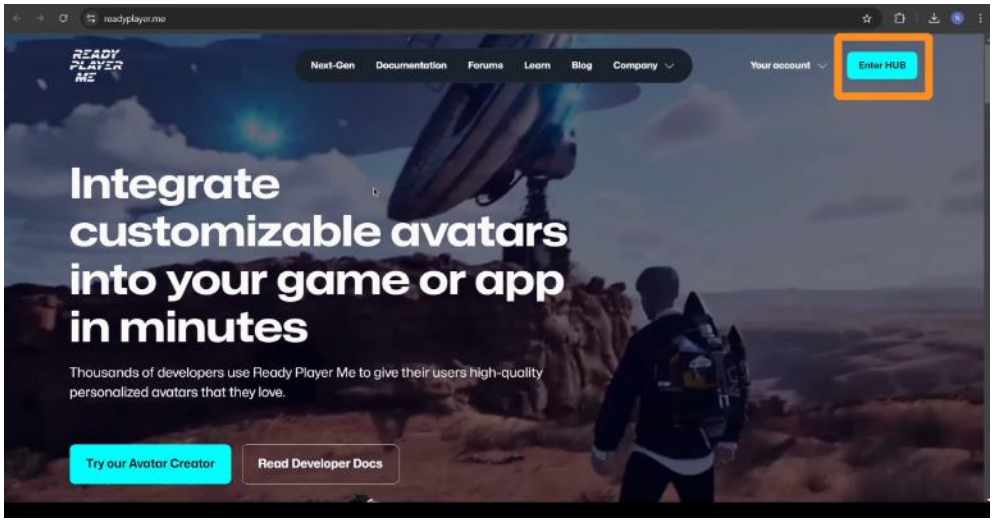
Sign up for a free account and pick the **Player** account option.

If you're facing a **blank screen**, you may need to confirm your account through a link sent to your email address first. Use the link on your email, and continue to the Ready Player Me website.

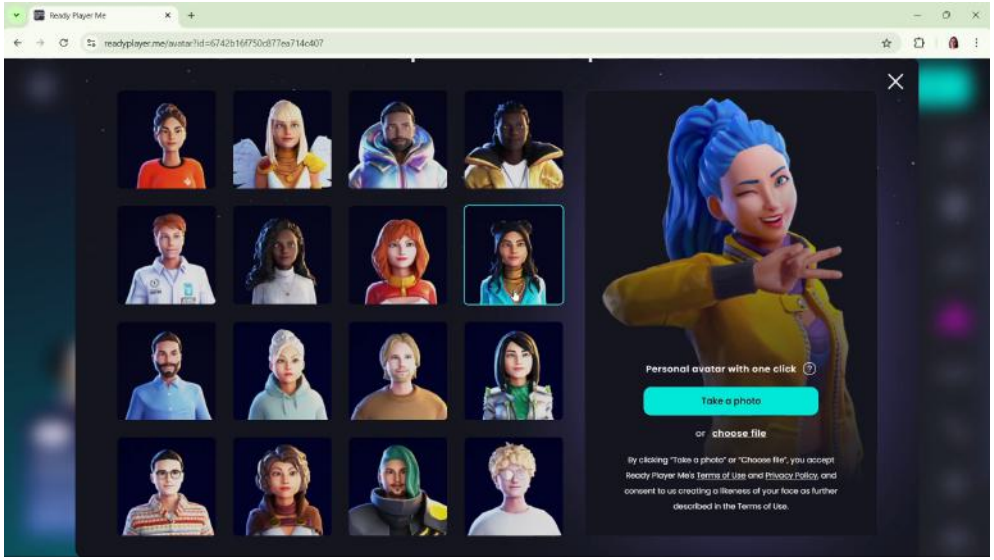


Once on the main page, click the **Enter HUB** button on top-right. You will be taken to the avatar creation page.

If you don’t see the avatar creation page after entering the Hub, from the left menu select **My Avatars** and then select **+Create New Avatar**.



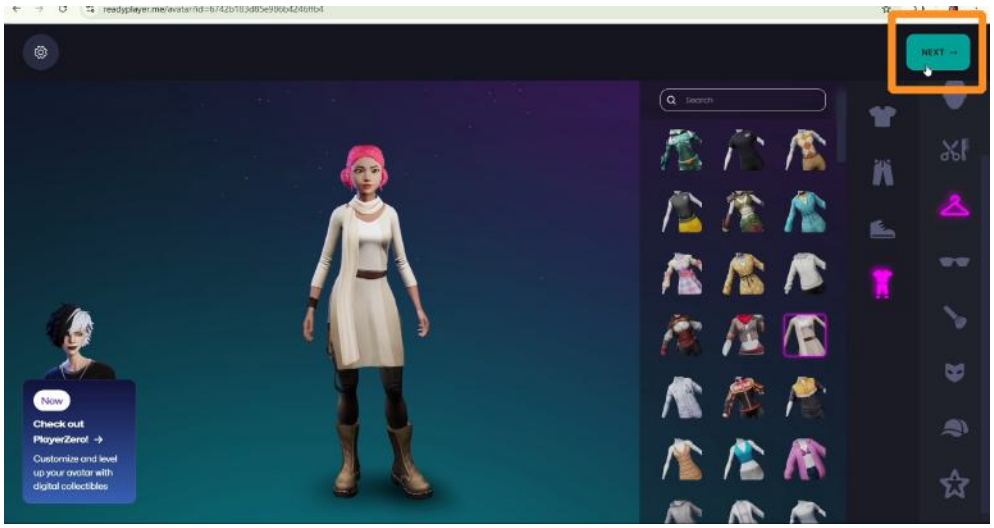
Pick one of the default avatars to start editing. You can also upload your own photo and Ready Player Me will create an approximate avatar based on the photo that you can edit.



Use the customization options on the editing page to change your avatar's facial features, body and height, hair, clothing, and more.

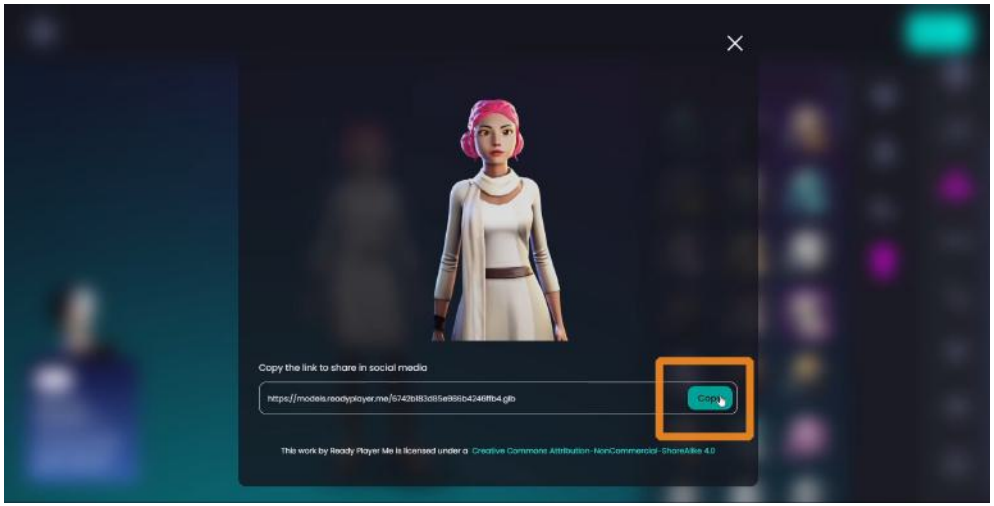
Explore the options until you create an avatar that you'd like to use.

When you're done editing the avatar, click **Next** on the top-right corner of your screen.



To download your avatar, copy the share link on the page and paste it into your browser. Your avatar will start downloading automatically as a **.glb** file.

By default, the file will be saved to the **Downloads** folder on your computer. We recommend locating the file and naming it **"[file-name]_TexturesOnly"**
(for example: MyAvatar_TexturesOnly.glb)



Self Check

Could you create an avatar that had the features and characteristics you wanted?

Step 3: Configure for animations in Blender

Preview

After creating an avatar in Ready Player Me, you have a 3D model of a character. This section will help you configure your avatar to be animated in the next steps.

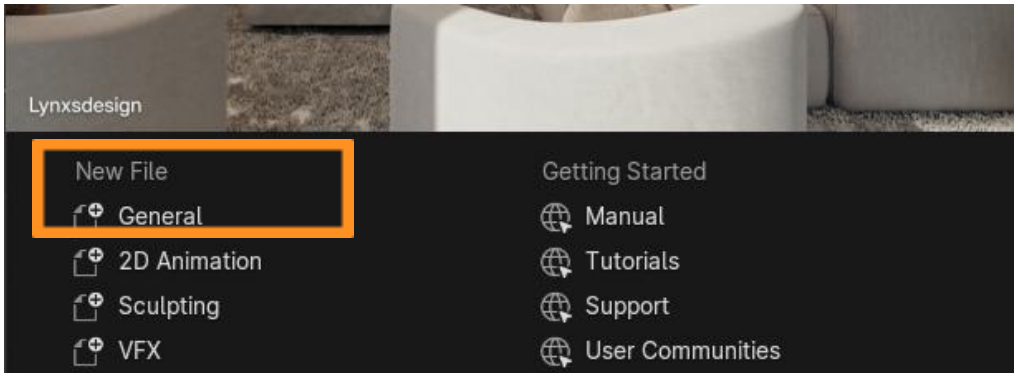
Please carefully note all the different file types and suggested naming conventions in this section.

Experiment

FILE CONVERSION IN BLENDER

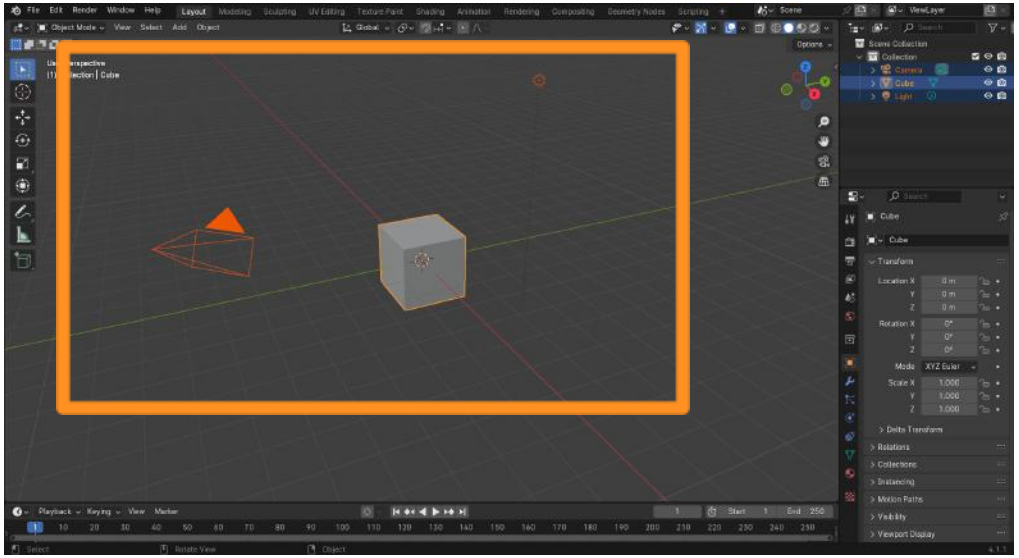
Blender is a free 3D creation suite that is commonly used in industry. Blender is a versatile tool that can be used in many aspects of 3D creation, but for this lesson, you will need it briefly to change the file format of your avatar.

Download Blender and follow the prompts to install it on your computer. Once installed, launch Blender and select **General** from the New File options.



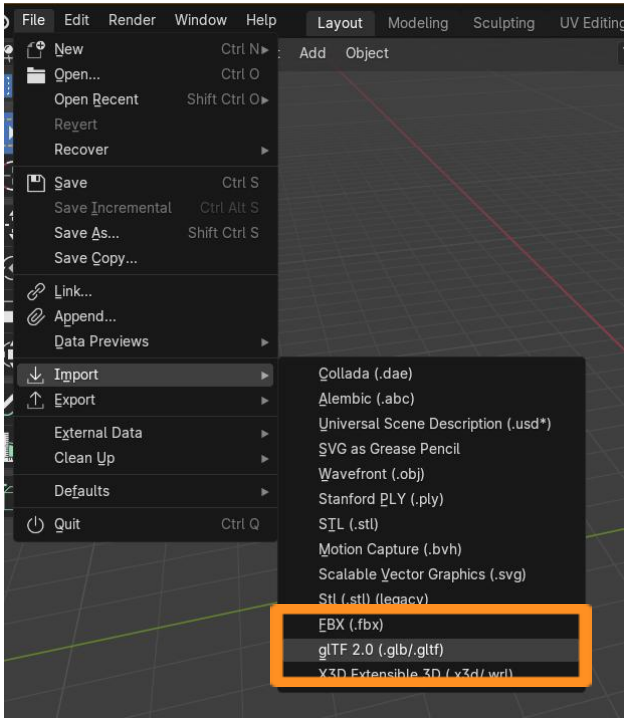
You will see some default objects (cube, camera, light) in the Blender scene that opens. You can delete these objects since they're not needed.

Click on the **"A" key** to select everything in your scene and press **Delete** (or the **"X" key**) to clear the scene.

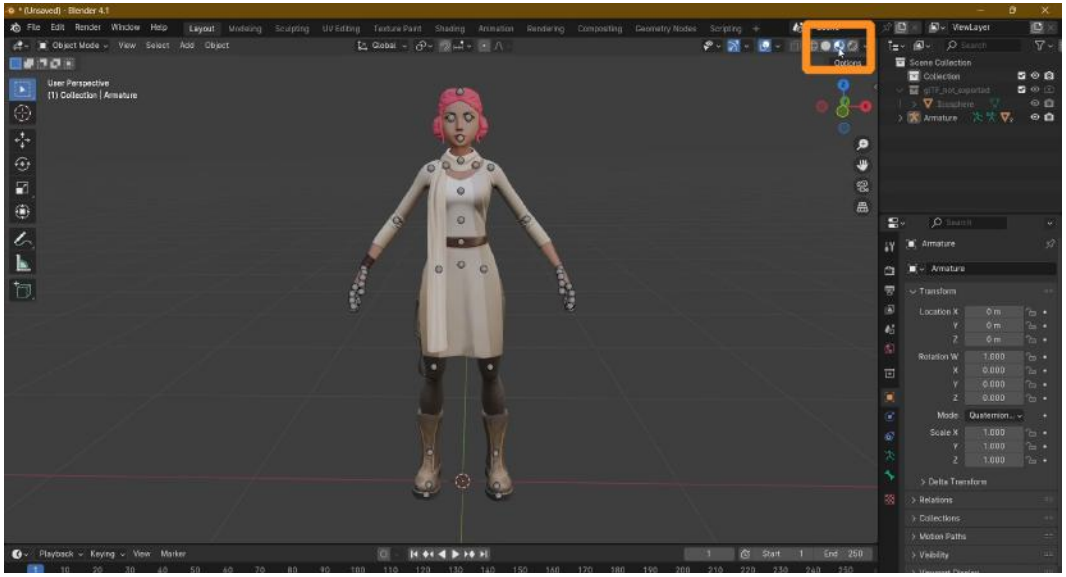


Import your Ready Player Me avatar into Blender by selecting **File > Import > glTF 2.0 (.glb/gltf)**, and then navigating to the folder where the model was downloaded to your computer from the Ready Player Me website.

Select the file, which should have been named **"[file-name]_TexturesOnly."**



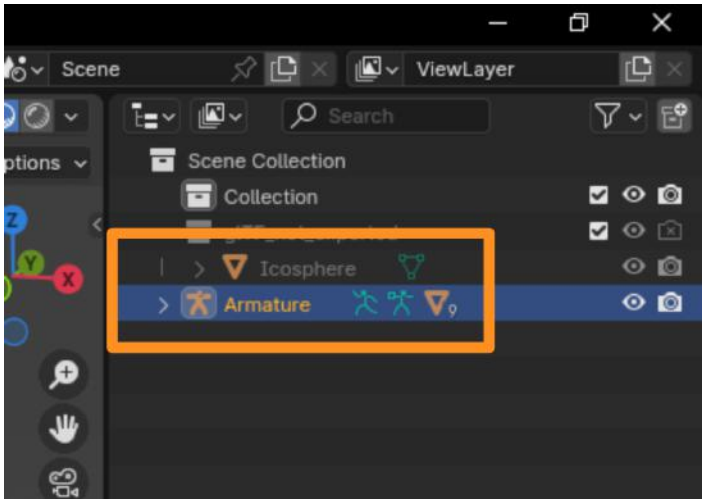
Your avatar will appear in the Viewport. If your avatar appears gray, you can enable the textures and colors on the viewport by clicking the Viewport Shading icon in the top-right corner.



Deselect everything by clicking an empty space in the Viewport away from your avatar.

In the **Scene Collection** menu on right, select **“Armature”** and hit the **“X” Key** or **Delete** on your keyboard to remove the existing skeleton. We are deleting the Ready Player Me skeleton because we will be adding a new one in Mixamo later.

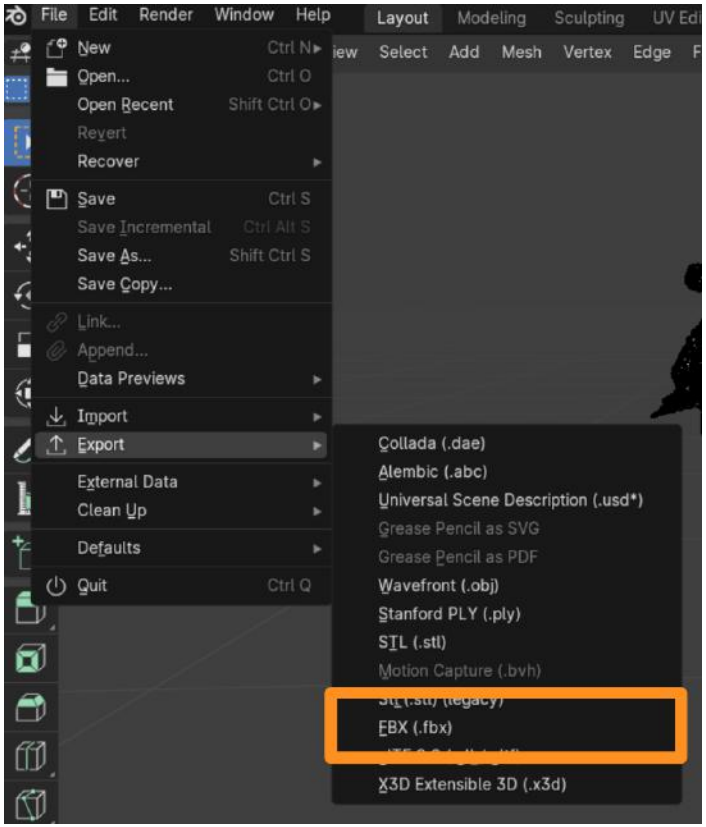
If you see any Icospheres in Scene Collection, delete those as well.



Export your avatar as an FBX file by selecting **File > Export > .fbx**.

We recommend naming the file **“[file-name]_preMixamo”**.
(for example: MyAvatar_preMixamo.fbx)

This file is a version of your avatar without “bones” or a “skeleton.” In the next section, we will show you how to add a new skeleton to your avatar so it can be animated using the Mixamo library.



Self Check

Were you able to import your avatar into Blender, edit it as suggested, and export it successfully?

Step 4: Select animations in Mixamo

Preview

Your avatar is now ready to animate. This section will help you select an animation to apply to your avatar to get it ready for import into UEFN.

Please carefully note all the different file types and suggested naming conventions in this section.

Experiment

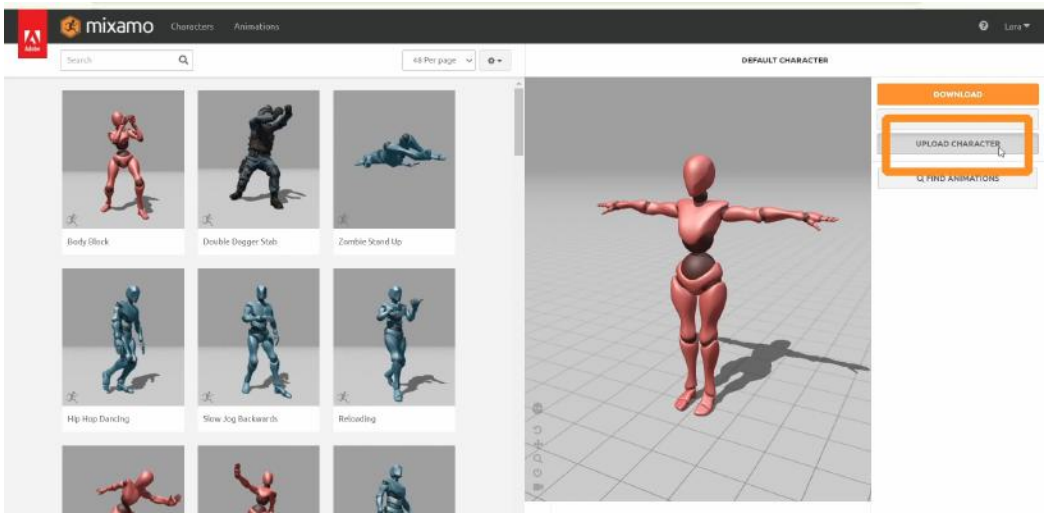
UPLOAD TO MIXAMO

Go to mixamo.com and sign up for free using your email.

You will see an avatar on the right and animation thumbnails on the left. We need to upload our avatar to the Viewport on the right.

Click the **Upload Character** button on the top-right, and select your “[file-name]_preMixamo.fbx” file exported from Blender.

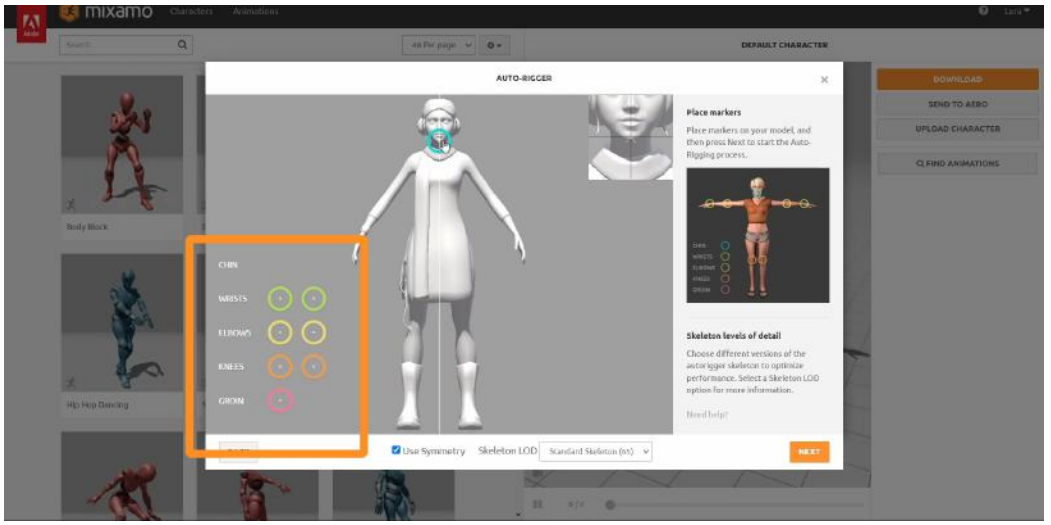
Once it’s uploaded, hit **Next**.



RIGGING THE MODEL

After uploading your avatar, position the colorful circles onto your avatar to represent locations of joints by clicking and dragging them to the appropriate locations. The system provides a mirror function to simplify this process. You will see an example on the right side of your screen that shows where to place each marker.

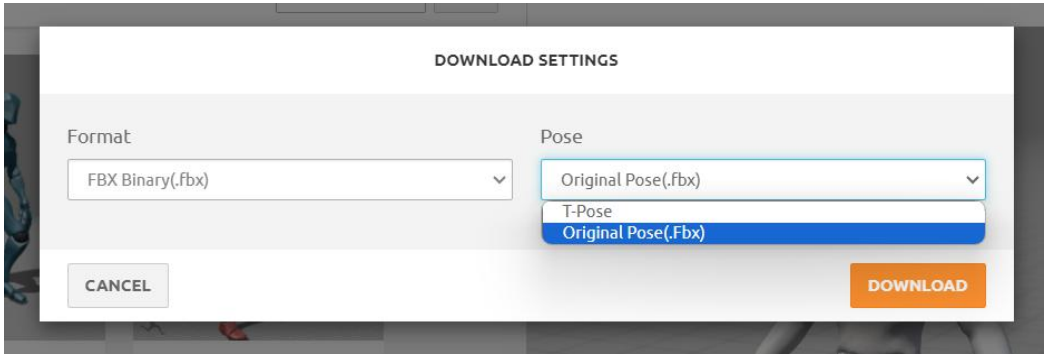
Click **Next** to have Mixamo rig the model. This process might take a few minutes. When done, click **Next** again.



Before selecting any animations from the left menu, click the **Download** button on the top-right. Keep the default format at **"FBX Binary"** and select **"Original Pose."**

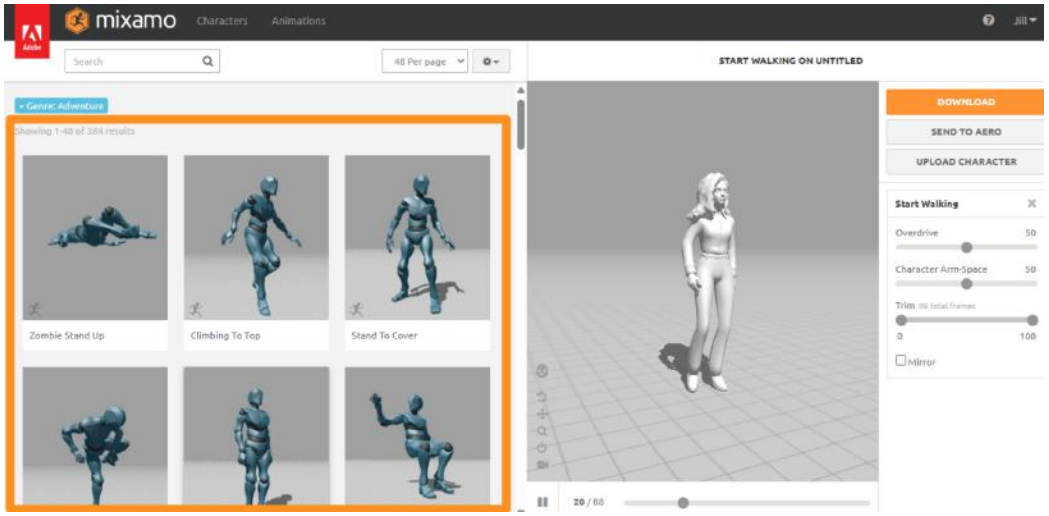
Click **Download** again and the avatar will download *automatically* to your "Downloads" folder. Find the file on your computer and **rename** it.

We recommend naming the file **"[file-name]_Bones."** (for example: MyAvatar_Bones.fbx)



Explore the animations in Mixamo's library by clicking on the thumbnails in the left window. You will see the animation play on your avatar on the right.

When you're happy with your animation choice, click on the **Download** button on the top-right.



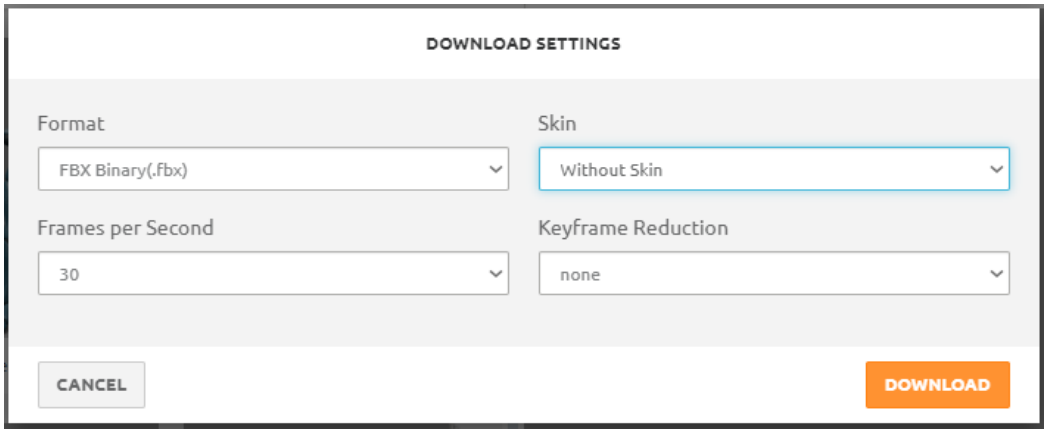
Keep most settings on default. For the "Skin" option, select "**Without Skin"**. This will download an animation data file without including the character model.

The file will download automatically to your computer. Find the file in your "Downloads" folder and **rename** it.

We recommend naming this file **"[file-name]_[animation-name]"**.
(for example: MyAvatar_Walking.fbx)

You are now done with the "[file-name]_preMixamo" file. Feel free to delete it if you do not want it on your computer.

Even if you follow your own naming conventions, make sure to name your files to be able to differentiate between them.



Self Check

Were you able to choose an animation to apply to your avatar, download all the necessary files, and rename them as suggested?

Step 5: Combine in UEFN

Preview

The final step of animating your avatar is compiling all the files in UEFN and bringing your avatar to life! Make sure all of your files are ready to go and are named appropriately. It is very important to use the correct files while compiling your animation in this step.

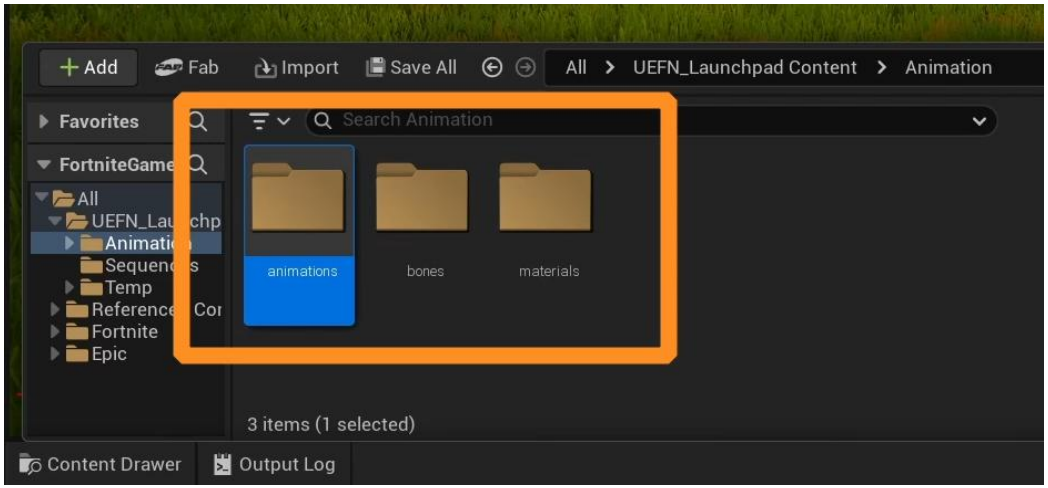
Experiment

IMPORT ALL FILES

Open UEFN and create or open a project.

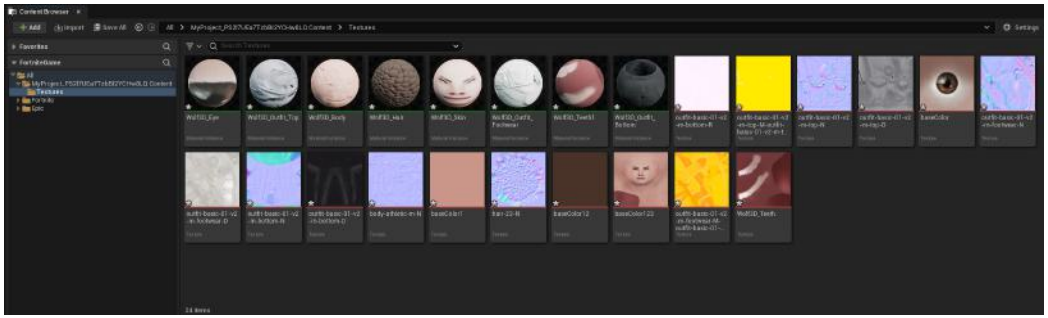
To begin, create three folders in your **Content Drawer** by right clicking on an empty area. These will help you keep track of the files you import. Name them:

- Animations
- Bones
- Materials



Open the “Materials” folder and **import** the .glb file named **“[filename]_TexturesOnly”**. This file will be used exclusively for the materials (colors and textures) of your avatar.

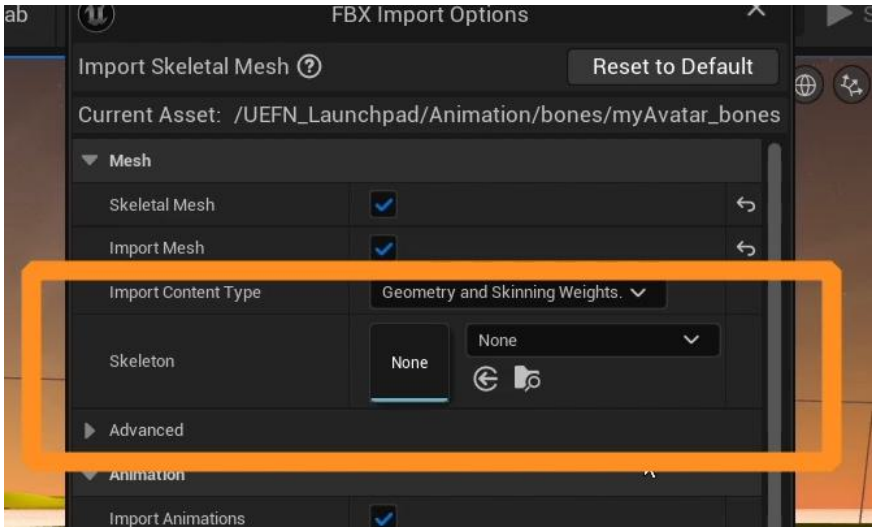
You will not be using the “Mesh” or “Skeletal Mesh” files in this folder, because we have another file for the “body” of the avatar.



Open the “Bones” folder and import the **“[file-name]_Bones”** .fbx file from Mixamo.

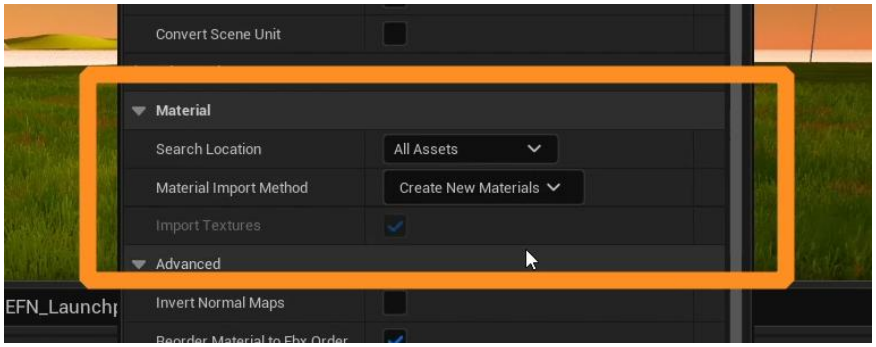
On the import screen, *make sure no skeleton is selected*. Under the **Mesh** section, the **Skeleton** option should say “None”.

If this option is pre-populated with a skeleton, you can deselect it by clicking the small return arrow next to the dropdown.



Scroll down to the **Material** section and make sure you select “All Assets” under **Search Location**. With this, the model will be able to find the materials you imported previously to the “Materials” folder.

When done, click on **Import All**.

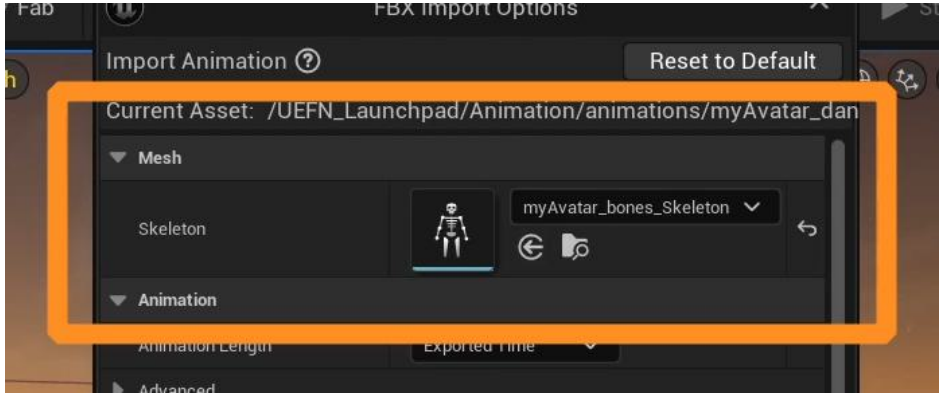


Next, open the “Animations” folder. This is where the animation files will be imported.

Click on “Import” and select your animated FBX files from Mixamo named **“[file-name]_[animation-name].”**

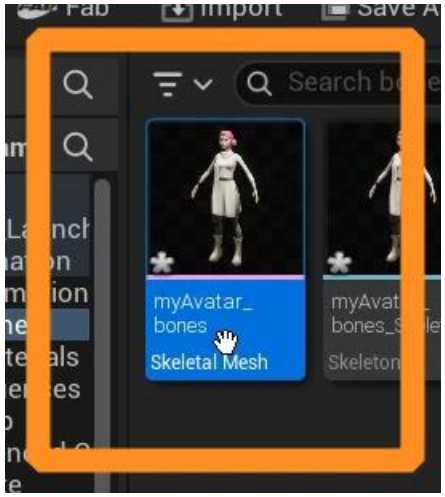
In the **Mesh** tab, next to the **Skeleton** option, make sure to select the skeleton that you’ve downloaded from Mixamo with the **“[file-name]_Bones”** name. The name of the file should automatically match the name of the skeleton.

Select **Import All** when done.



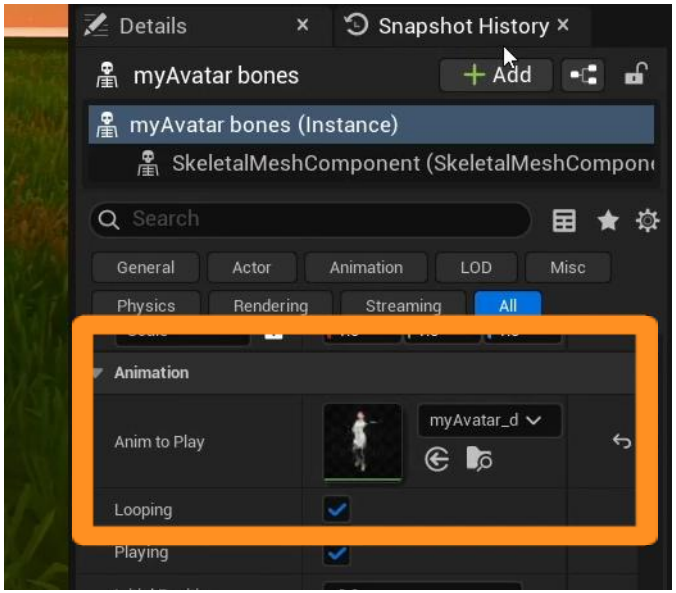
In the “Bones” folder, drag the **Skeletal Mesh** asset onto your island. This asset will be underlined in **pink** in the thumbnail.

This asset is just the skin and bones of your avatar and does not have animations yet.



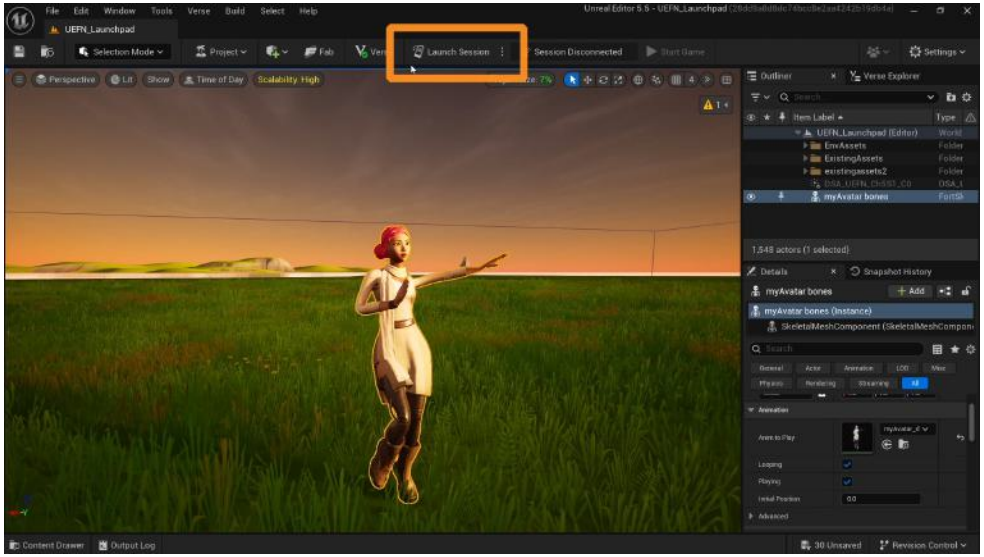
Select your skeletal mesh in the Viewport and go to the **Details Panel**.

Under the **Animation** tab, find “Anim to Play.” Open the dropdown and select the animation you want to apply to your avatar.



Your avatar skeletal mesh will be positioned to the first frame of the animation but will not move in the Viewport.

To see the animation play in real time, **Launch Session** and open your island in Fortnite.



Self Check

Could you animate your avatar as you wanted?

Lesson Closure

Demonstration of Learning

In this Guide, you've learned how to create your own avatar in Ready Player Me and animate it using Blender and Mixamo. Paying attention to different file types and names, you've compiled all of the files in UEFN to bring your avatar to life with animations.

Exploration Opportunities

Learning how to animate avatars or different characters can open a whole new world of 3D creation for you. After understanding the basics of character animation, you can apply the skills you've learned into animating any kind of character you want in your 3D experiences.

Check out the following Learning Guides to learn how to animate photogrammetry models of people or inanimate objects and cameras in UEFN:

- Animate Photogrammetry Models of People Learning Guide
- Animate Assets and Cameras in UEFN Learning Guide