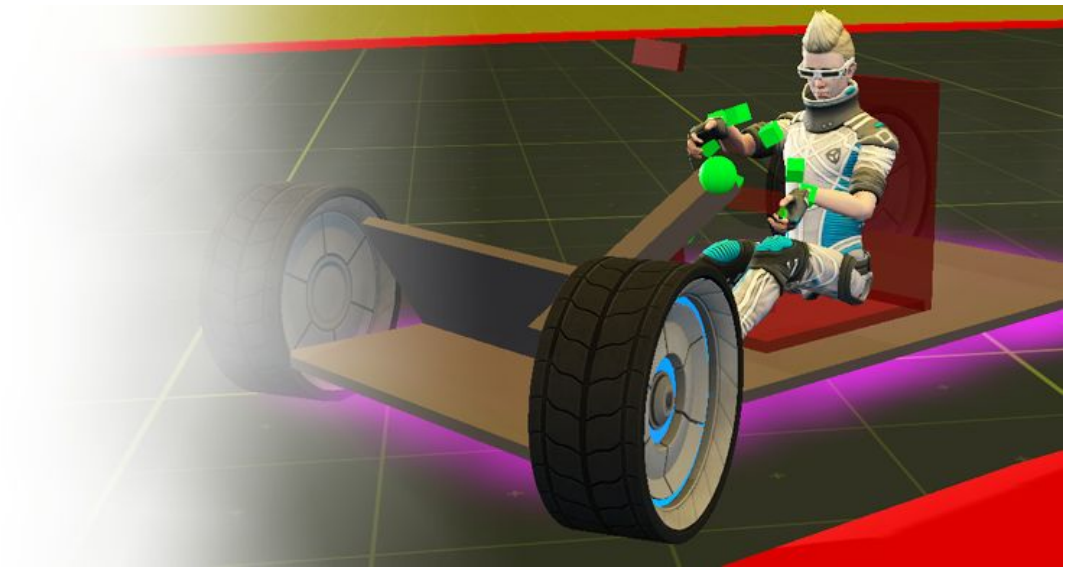


IK Driver

V 1.03

TurnTheGameOn

Overview

IK Driver helps bring your car games to life by animating the avatar driving based on the horizontal/vertical axis input values from the car controller. This allows for vehicle input to be complimented by applying the appropriate procedural IK animations for looking, steering, shifting, brake, gas and clutch pedal actions.

Features

1. Procedural IK driver with 15 IK targets for hands, feet and looking.
2. All IK targets can be re-positioned and rotated.
3. Configurable head look range
4. Configurable head look speed
5. Configurable head look snap-back speed
6. Improved standard assets vehicle controller with custom inspector. Includes shifting audio and Nitro feature.
7. Custom camera controller to allow for switching between a traditional follow-the-car camera or the driver's helmet camera.
8. Rearview mirror
9. Written in C#

Specifications

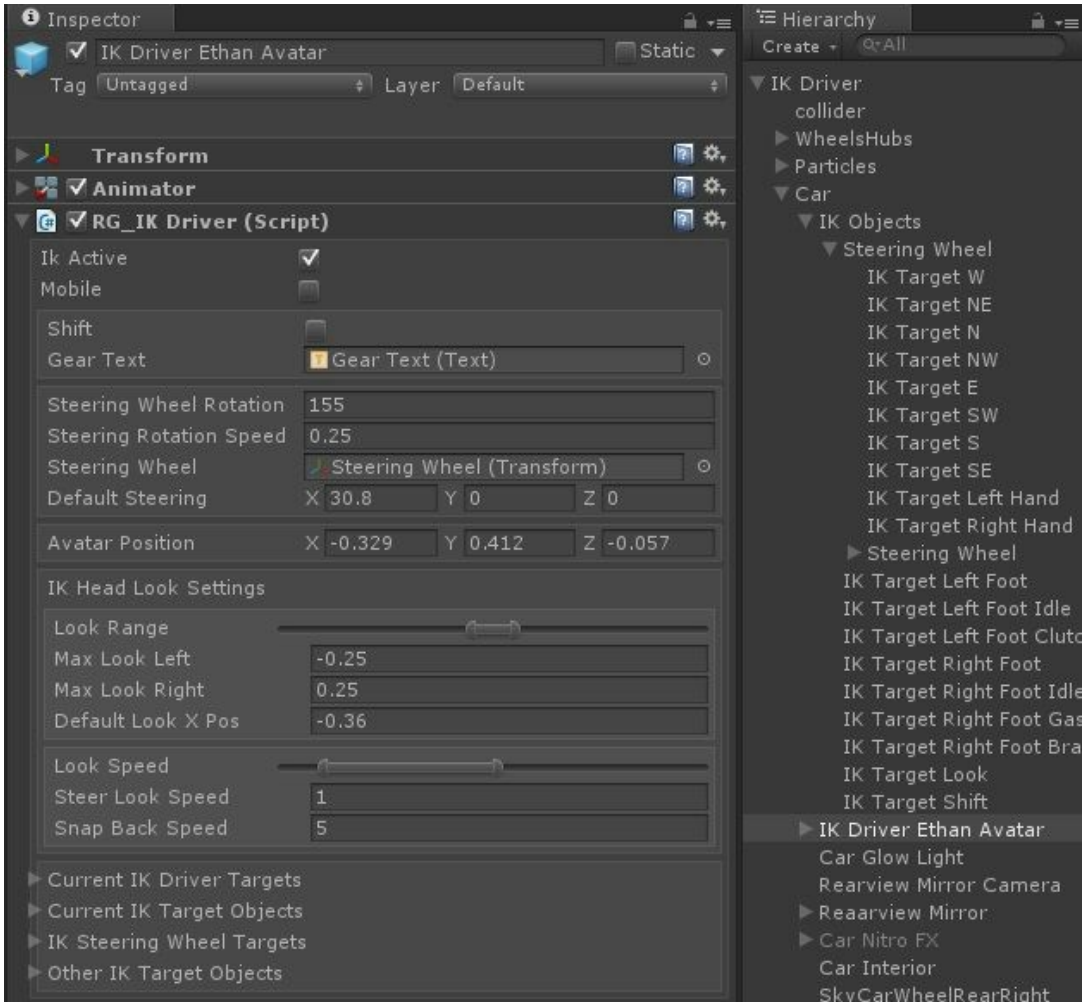
IK Driver was built to use the standard assets vehicle input to animate the driver avatar. To use another vehicle controller with this asset you will need to edit the scripting references from the "standard assets user input" to your own "vehicle controller input" in the RG_IKDriver.cs script.

Video Tutorial

https://www.youtube.com/watch?v=4_ruOs-xWF0

Demo Scene(s), Prefab and Inspector

There are 2 demo scenes included, both are similar, the UI settings are the only differences. Use these scenes or the “IK Driver” prefab to build your own “IK Driver” vehicle prefab by replacing the necessary components detailed in the instructions below or by following the video tutorial.

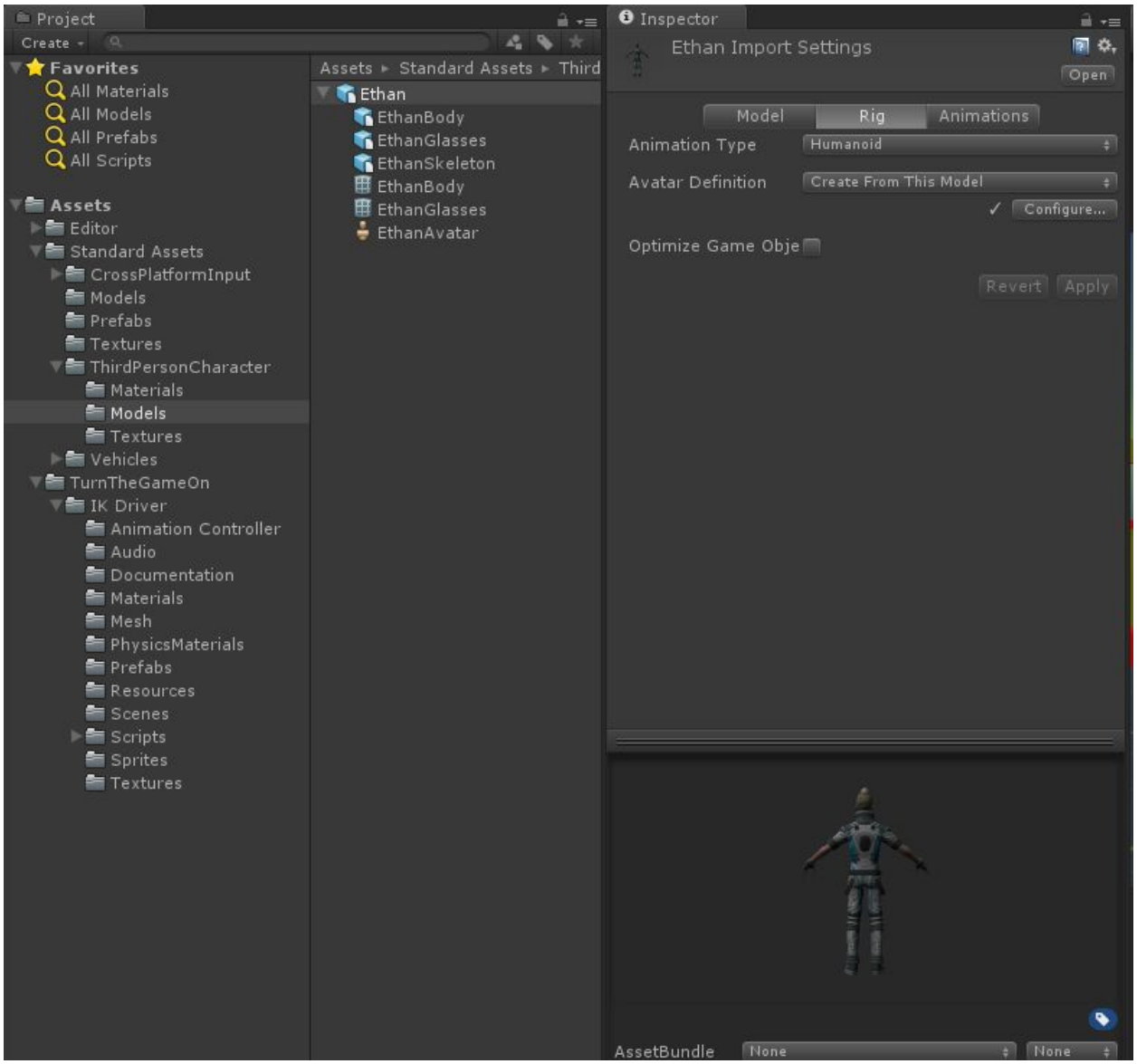


The image above shows the RG_IKDriver.cs script attached to the Humanoid Avatar. This driver can be disabled or enabled at anytime, the script looks up the horizontal/vertical axis input values used by the car controller on lines 102, 203 & 204, edit the reference if your controller is using a different input method. Mobile input is referenced on lines 100, 162 and 163 by referencing the UnityStandardAssets.CrossPlatformInput.CrossPlatformInputManager.GetAxis() .

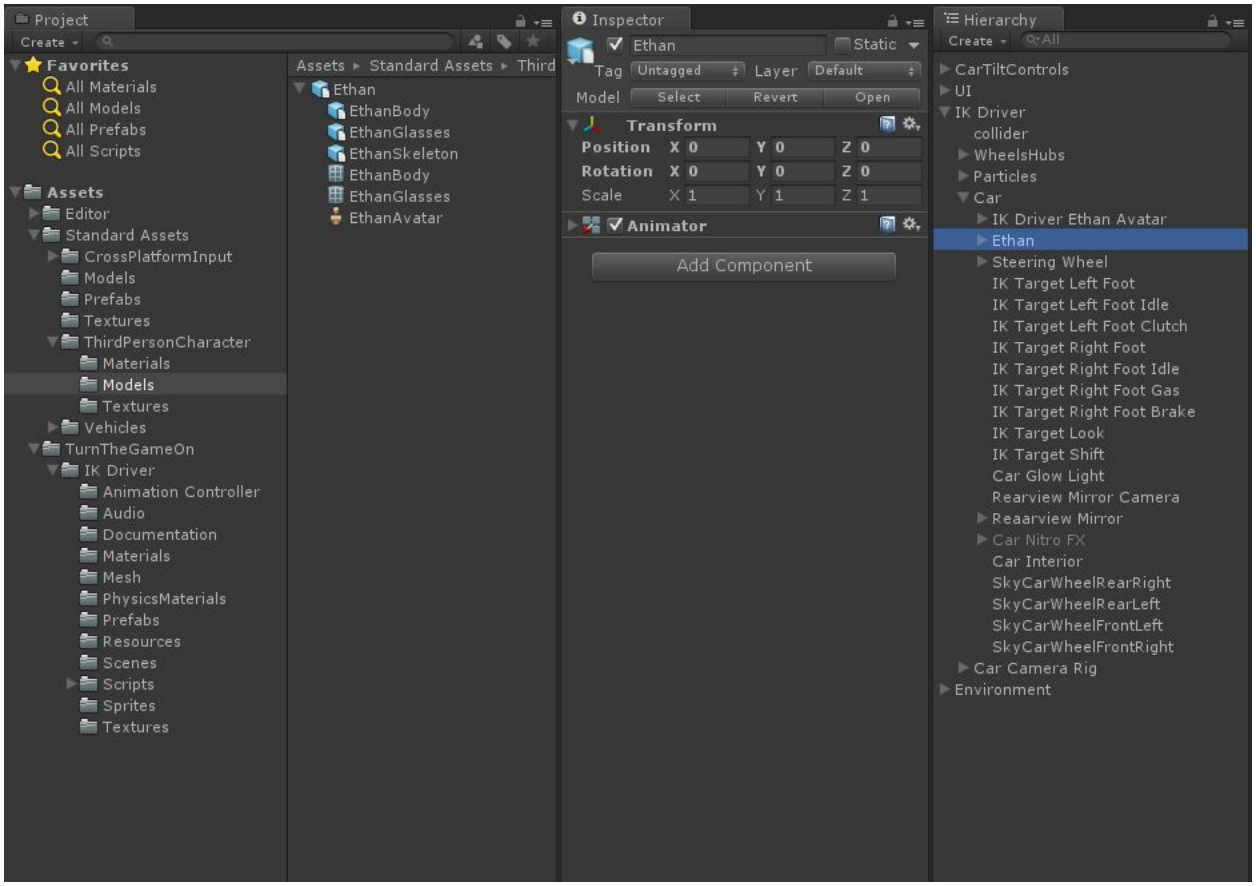
Changing the Humanoid Avatar

You can replace the avatar model with your own in a few steps.

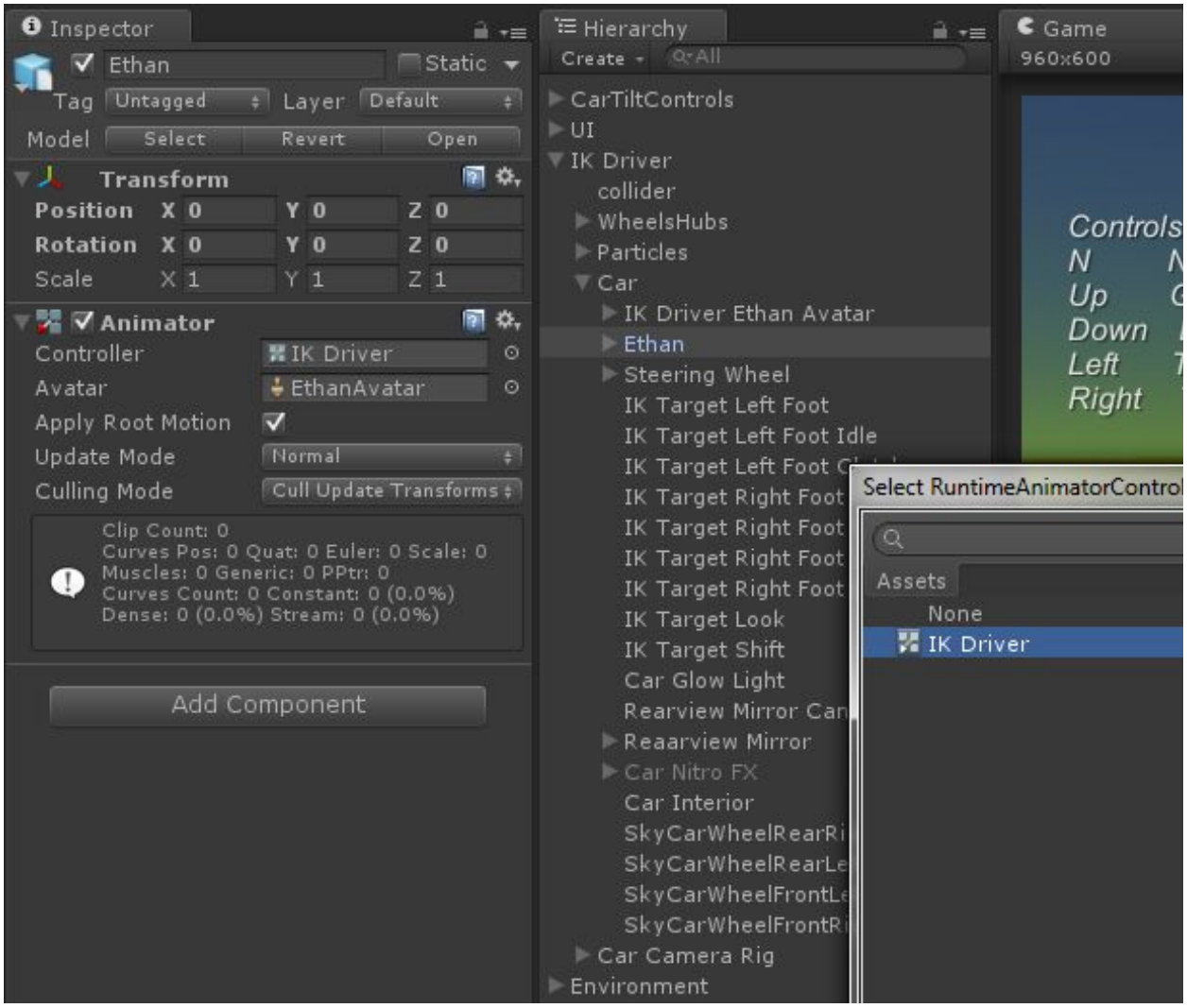
1. Ensure your avatar rig is configured as a humanoid for its Animation Type and has a properly configured bone structure, if the bones are not properly configured on your model the avatar will not look right when animated in a procedural manner.



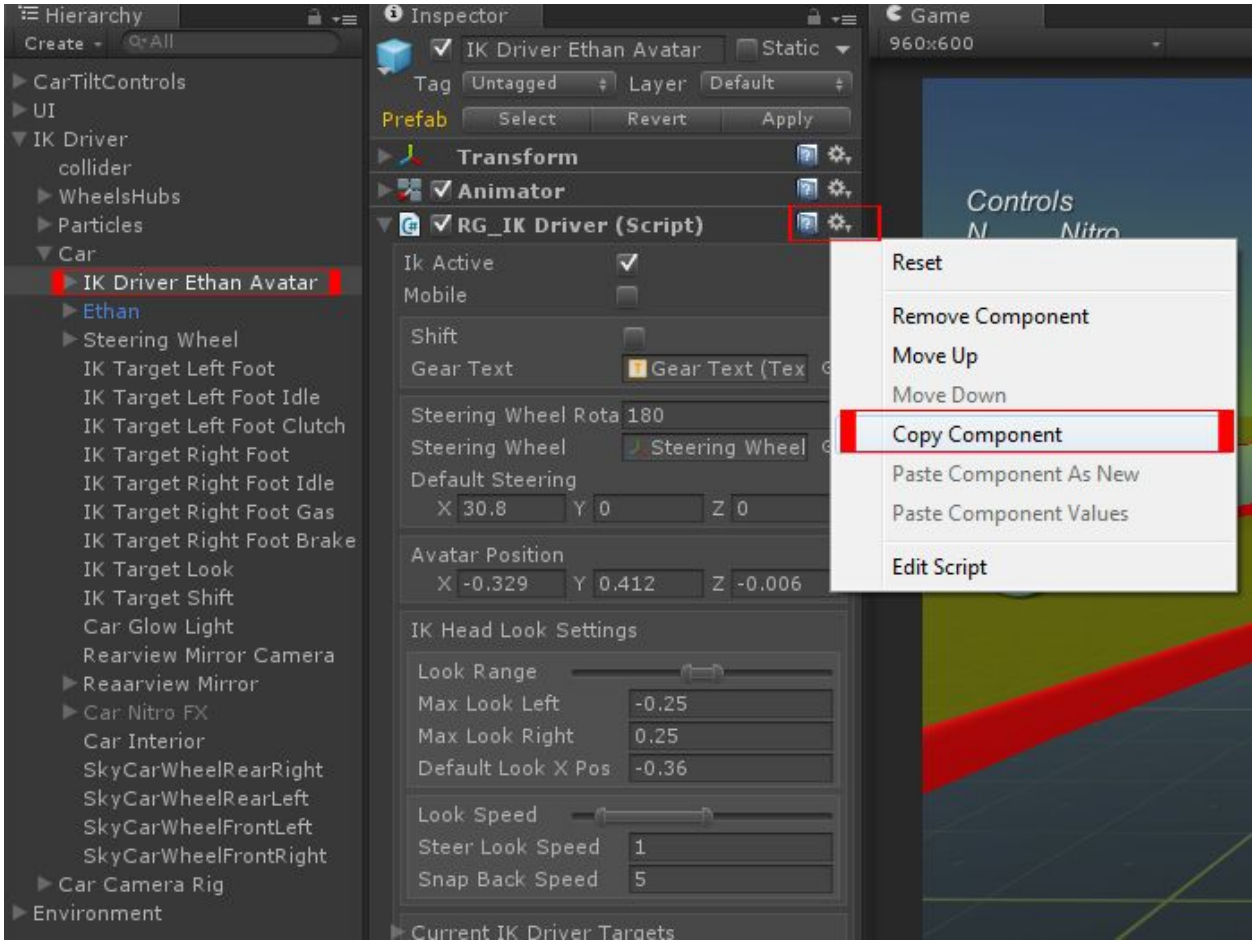
2. Bring your avatar into the scene's hierarchy and place it as a child of the "Car" object, the same way the current "IK Driver Ethan Avatar" is positioned.



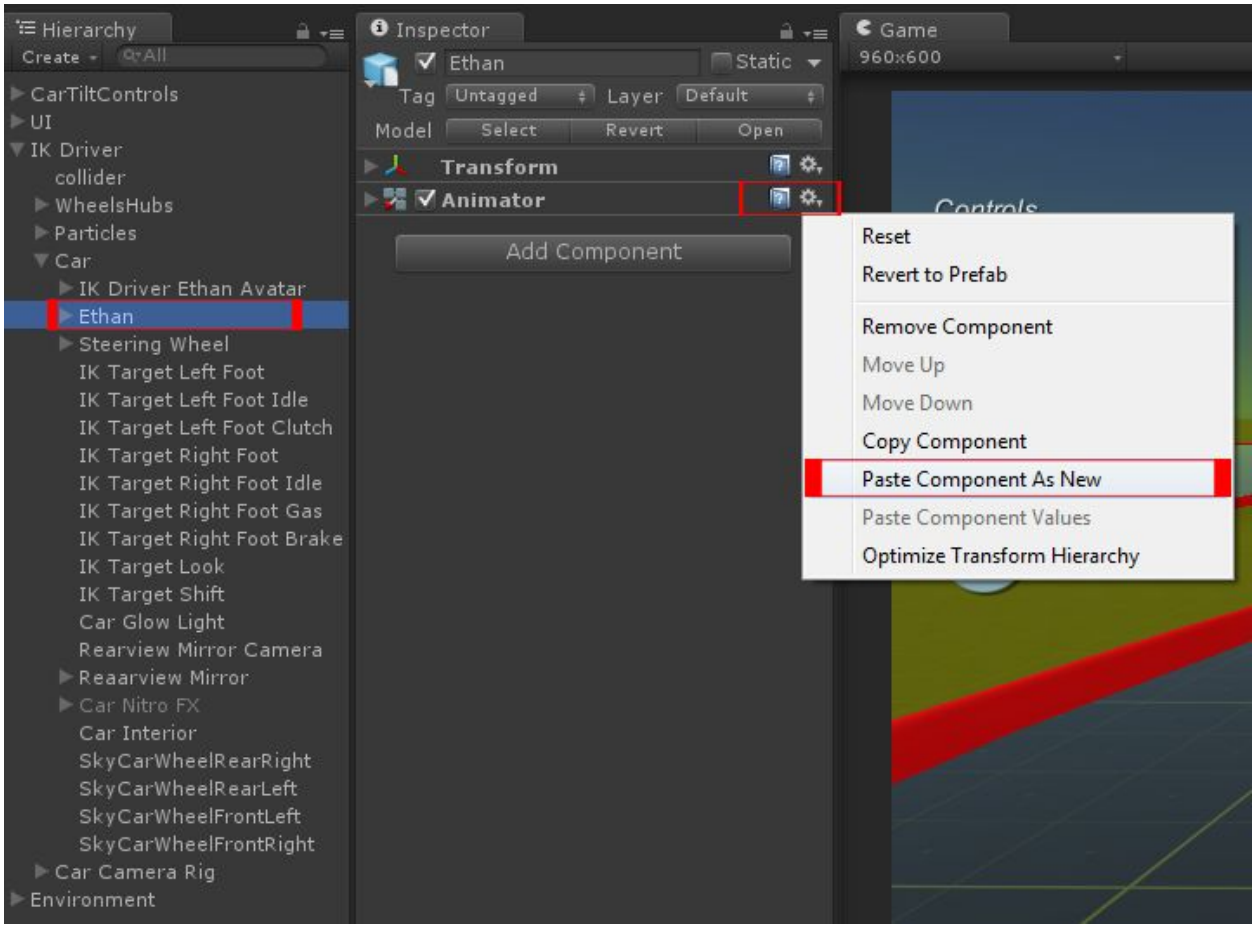
3. Assign the IK Driver Animation Controller to the Animator component on your avatar.



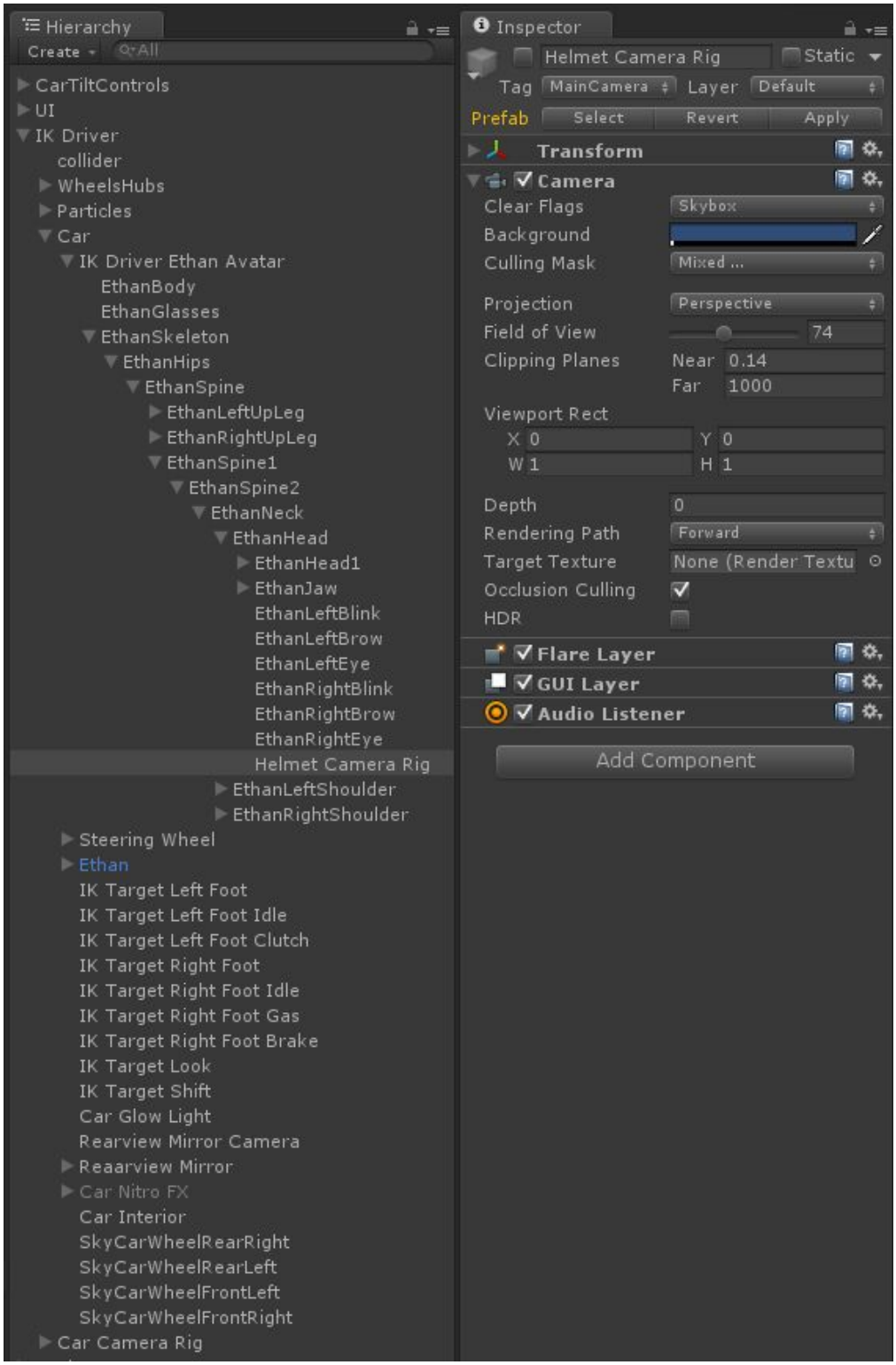
4. Copy the RG_IKDriver component from the original avatar.



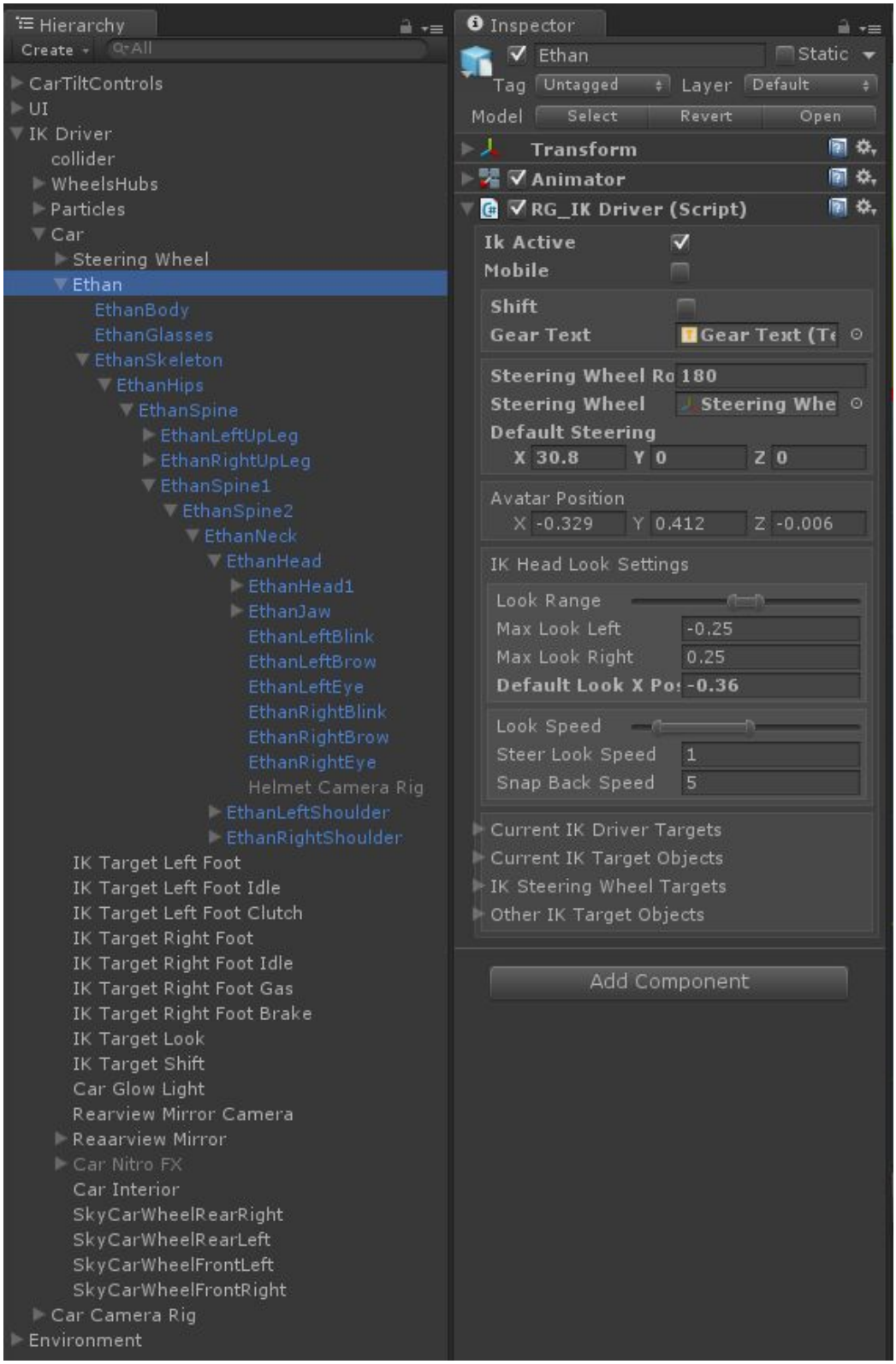
5. Paste the RG_IKDriver component from the original avatar on your new avatar.



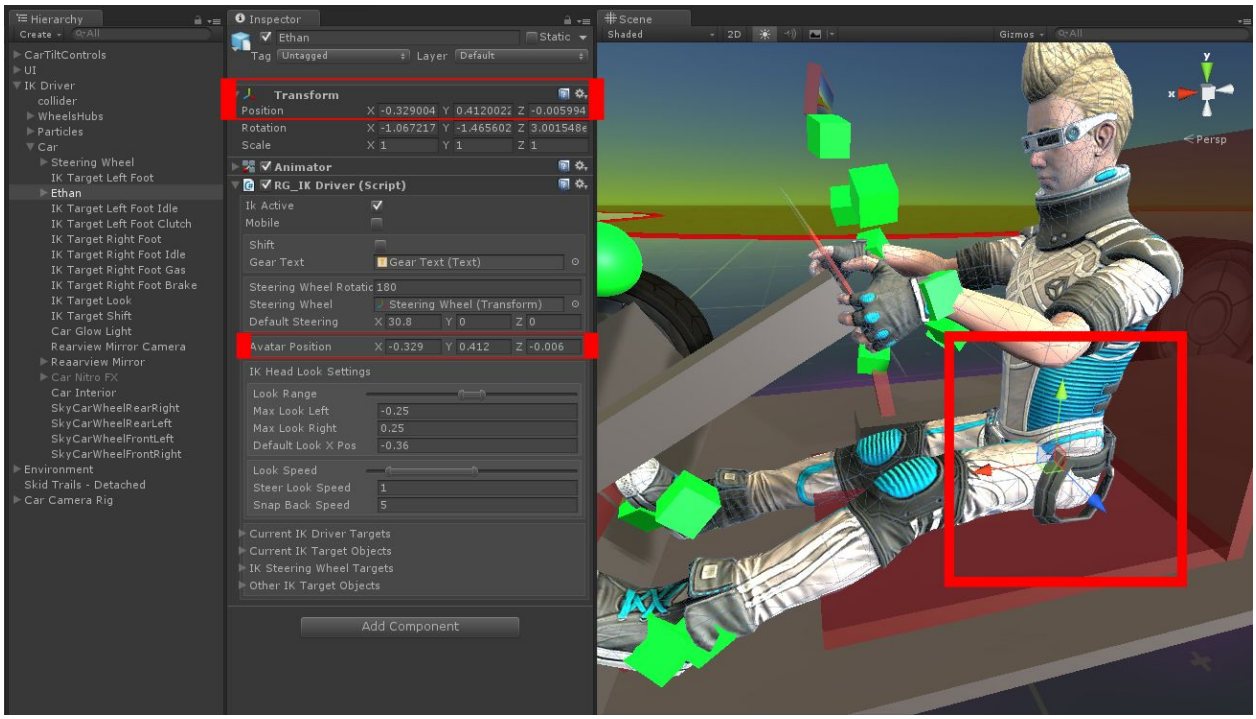
6. Find the Helmet Camera Rig in your scene's hierarchy that is attached to the original avatar's head and move it to your new avatar's head.



7. Your new avatar is now ready to use with this car controller. You can delete the original IK Driver Ethan Avatar from the IK Driver prefab in the scene.



8. To reposition your avatar you will need to enter play mode, find the right transform position for the driver by moving it around to a position that looks appropriate, then make a reference to the avatars Vector3 Transform Position. Exit play mode and enter the position you choose into the “Avatar Position” field of the RG_IKDriver inspector. This will set the avatar’s position in the Start method.



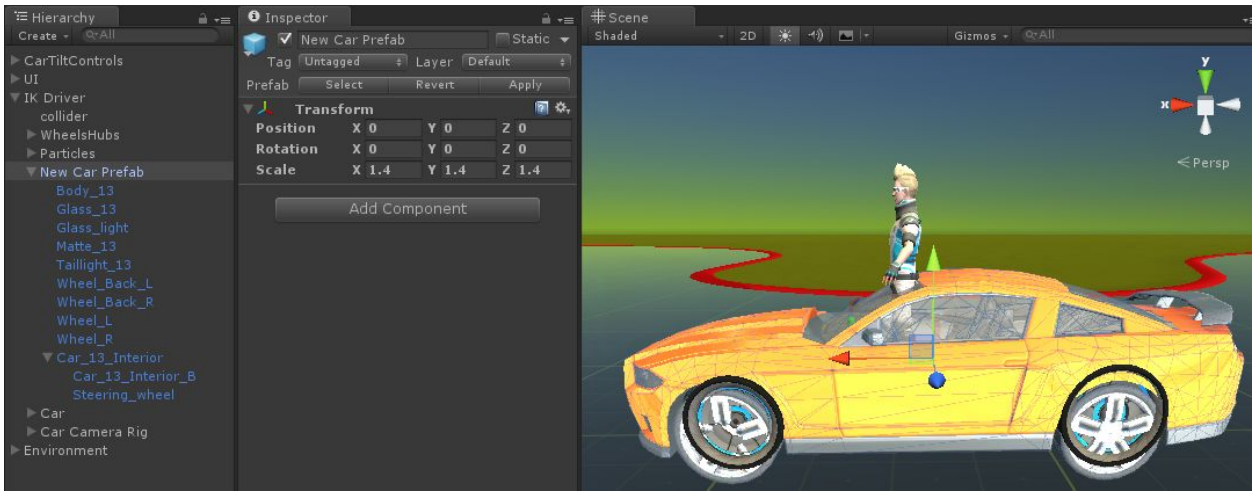
9.
10.

Changing the Car Model

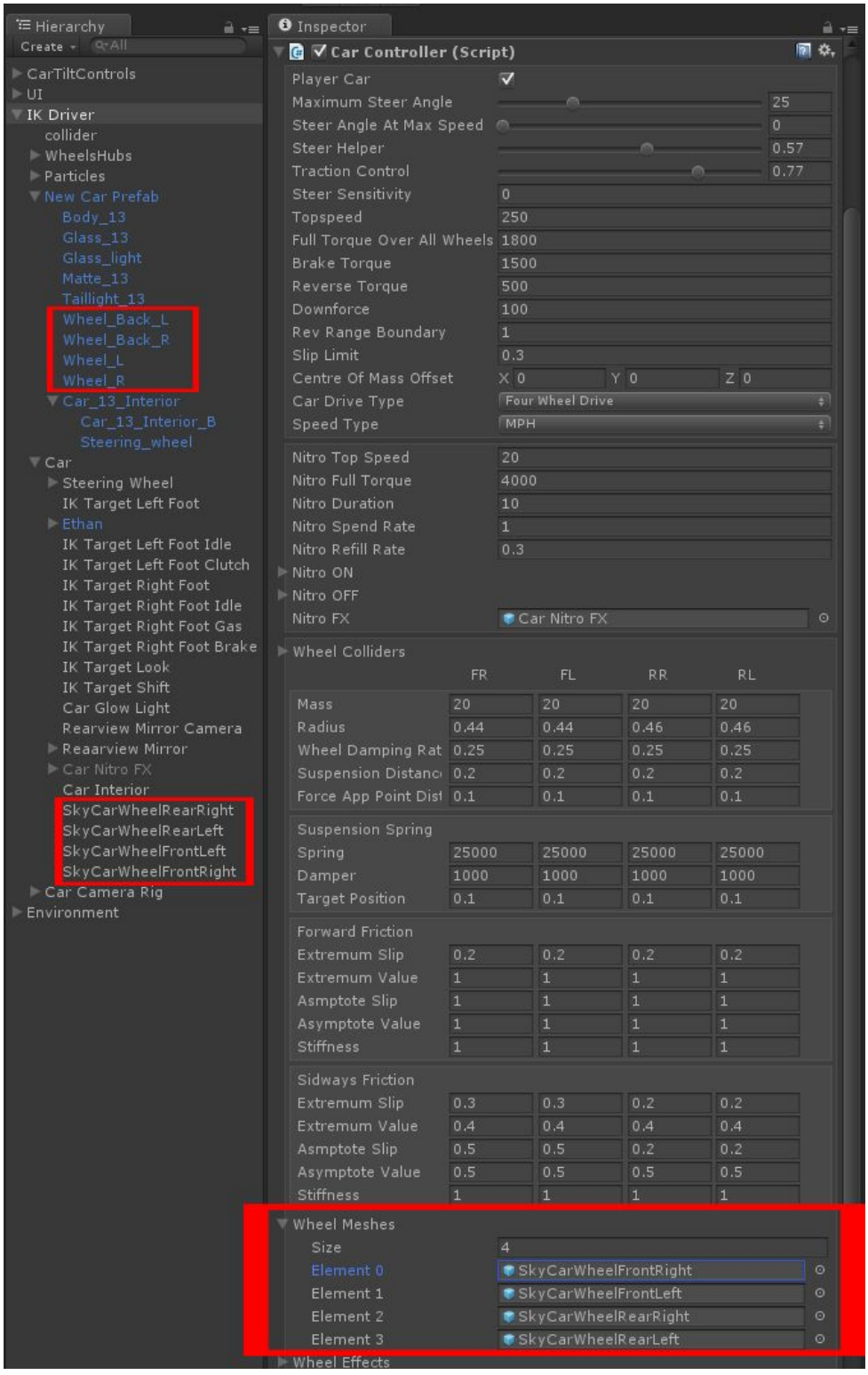
Your car model should have the following:

- Separated steering wheel
- Separated wheels
- Appropriate Interior

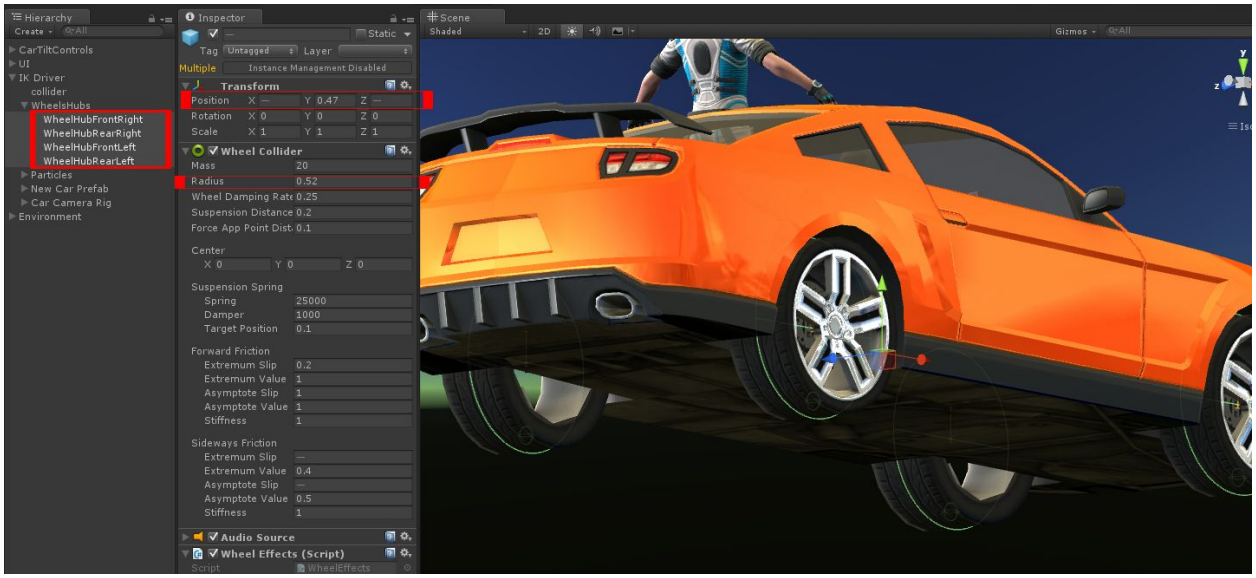
1. Bring your “new car model” prefab into the scene’s hierarchy and place it as a child of the “IK Driver” object. Set your car’s scale to be similar to the IK Driver car.



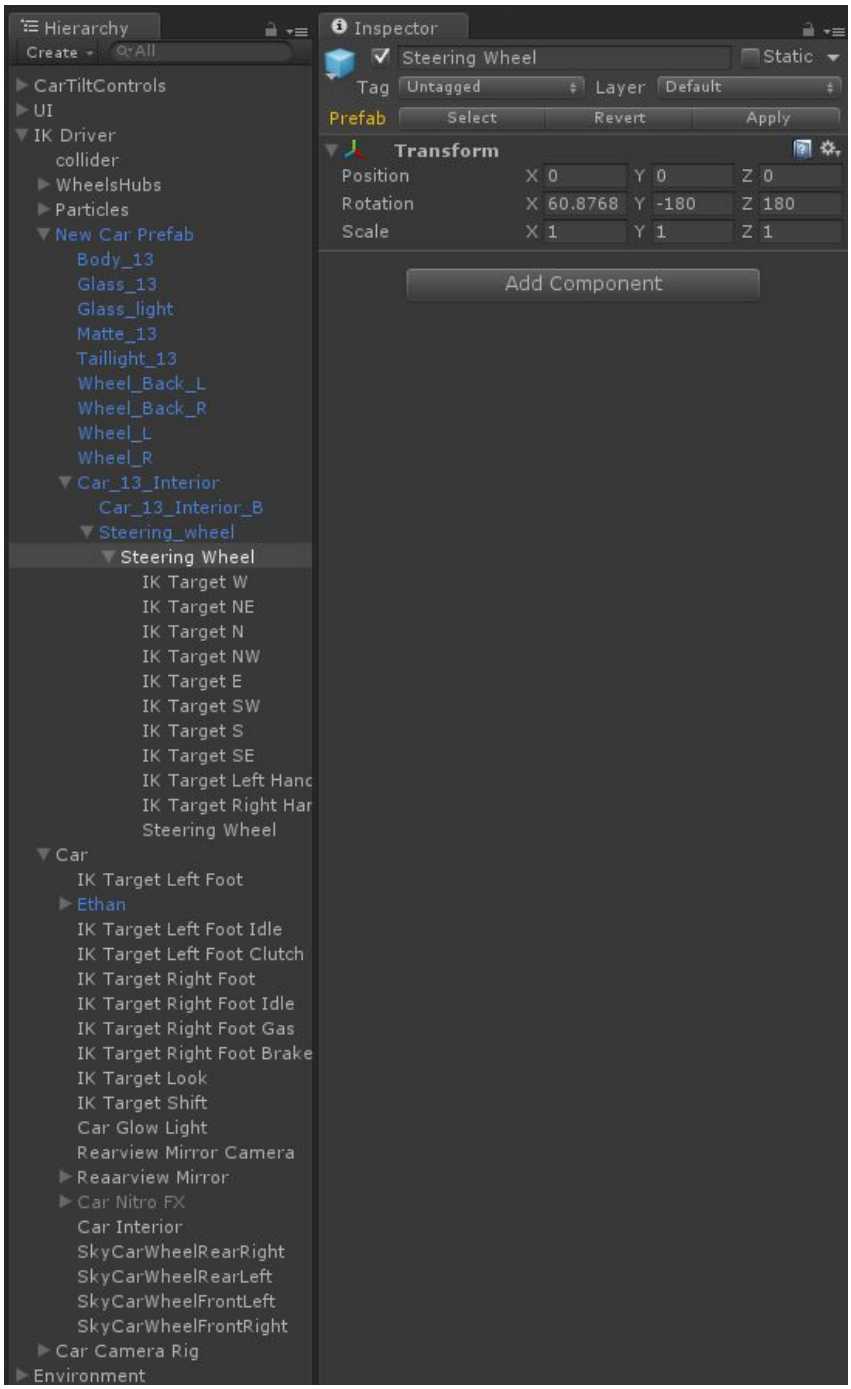
2. Replace the old Wheel Meshes on the Car Controller script with your new wheels using the same ordering method currently used. Front Right, Front Left, Rear Right, Rear Left



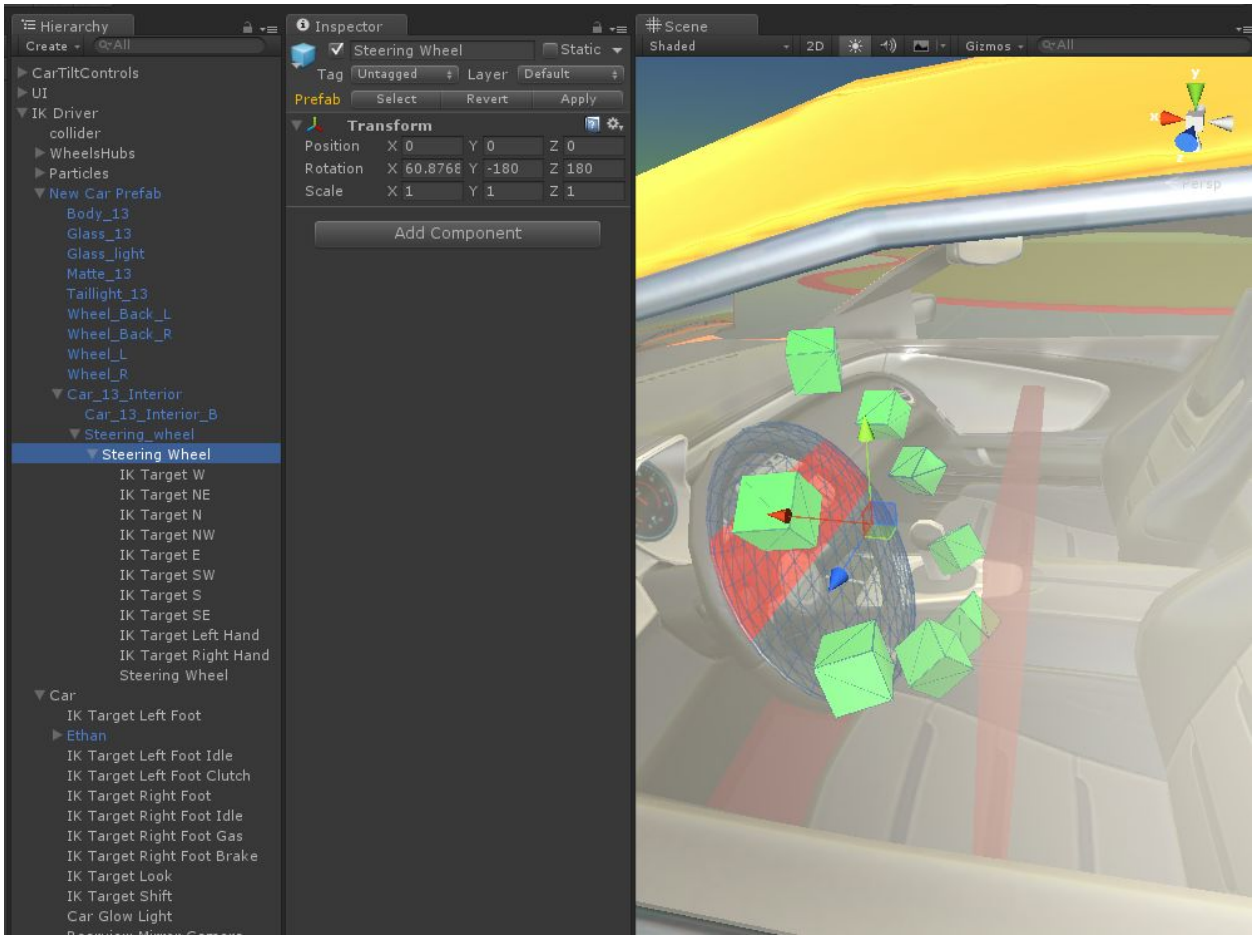
3. Adjust the wheel colliders radius and transform positions to be appropriate for your new wheels.



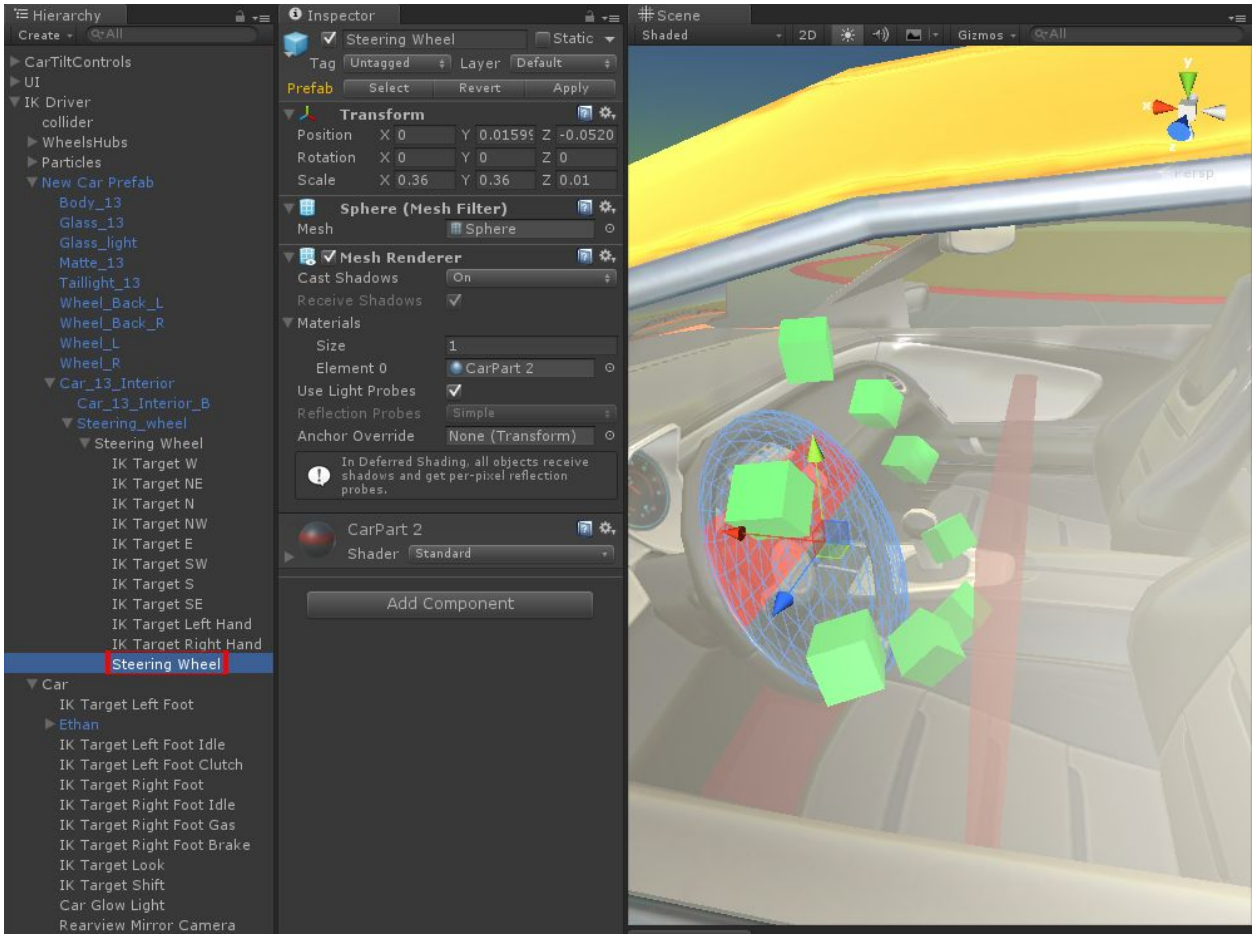
4. **If you did not make your car model, it's likely that the steering wheel pivot is not set properly and will need to be adjusted by a 3D artist to be used, so this tutorial will show how to use the included pivot point from the original steering wheel rig.** Move the original "Steering Wheel" object to be a child of your new car's steering wheel and set the transform position to 0,0,0, this aligns the steering IK targets to your new steering position .



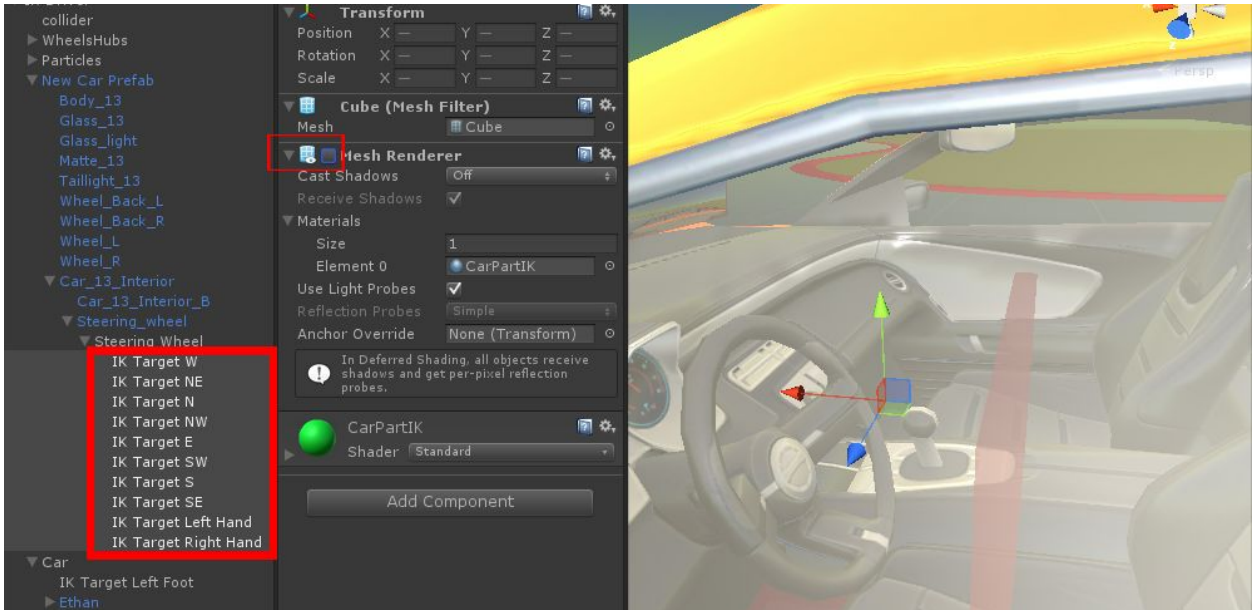
5. Adjust the X rotation to be aligned with the new steering wheel if needed to properly align the steering IK targets. **For this car model, the pivot transform rotation is not 0 on the Y and Z axis. If the transform rotation Y and Z are 0, then your steering wheel pivot is properly setup and you can just move all IK targets attached to the wheel onto your new steering wheel. Scale this steering wheel to match the size of your own if it does not match to adjust the steering IK targets.**



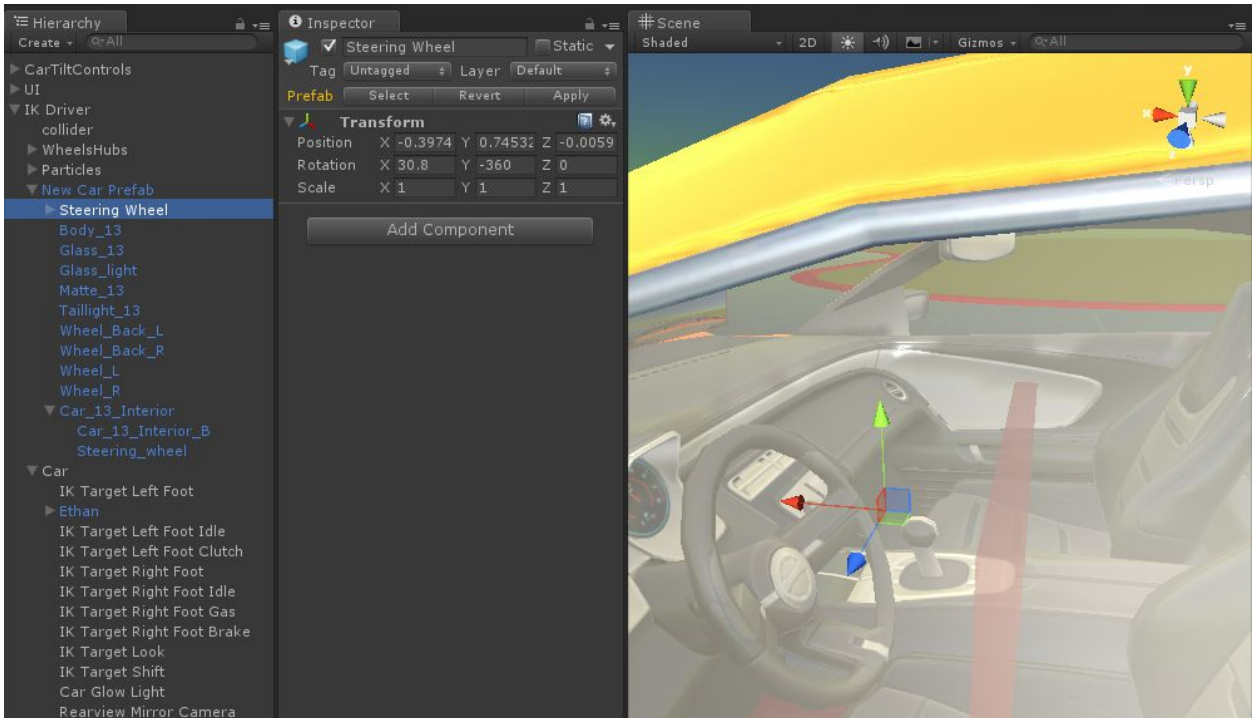
6. Delete the old steering wheel mesh.



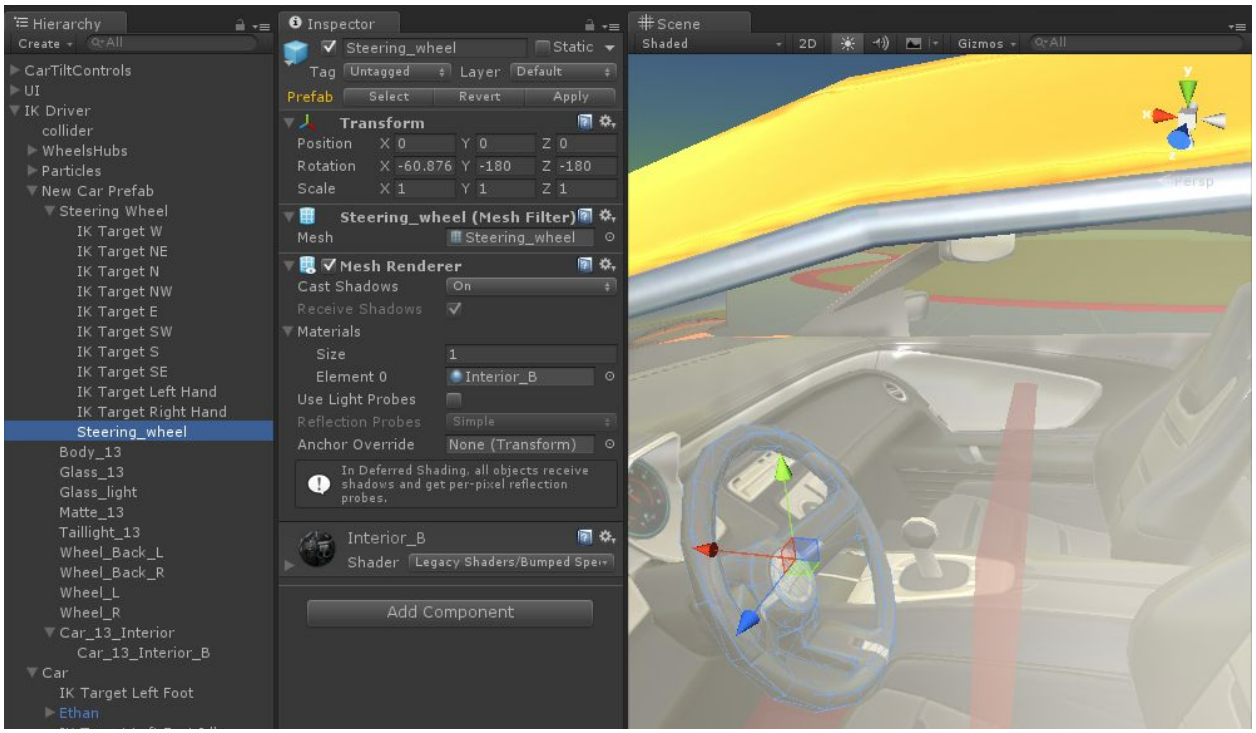
7. Disable the steering wheel IK Target Mesh Renderers.



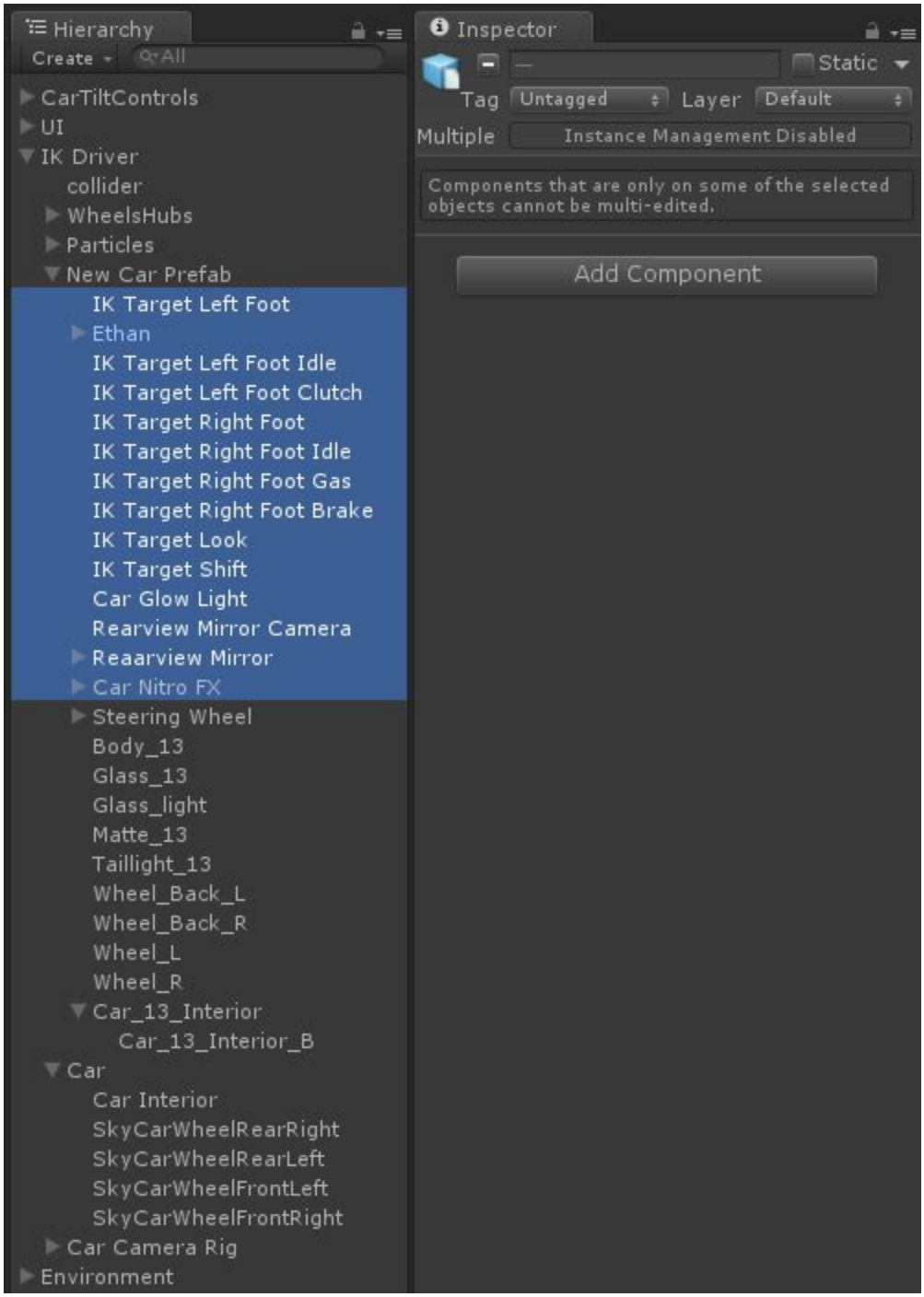
8. Move the original Steering Wheel Rig to be a child of the car prefab.



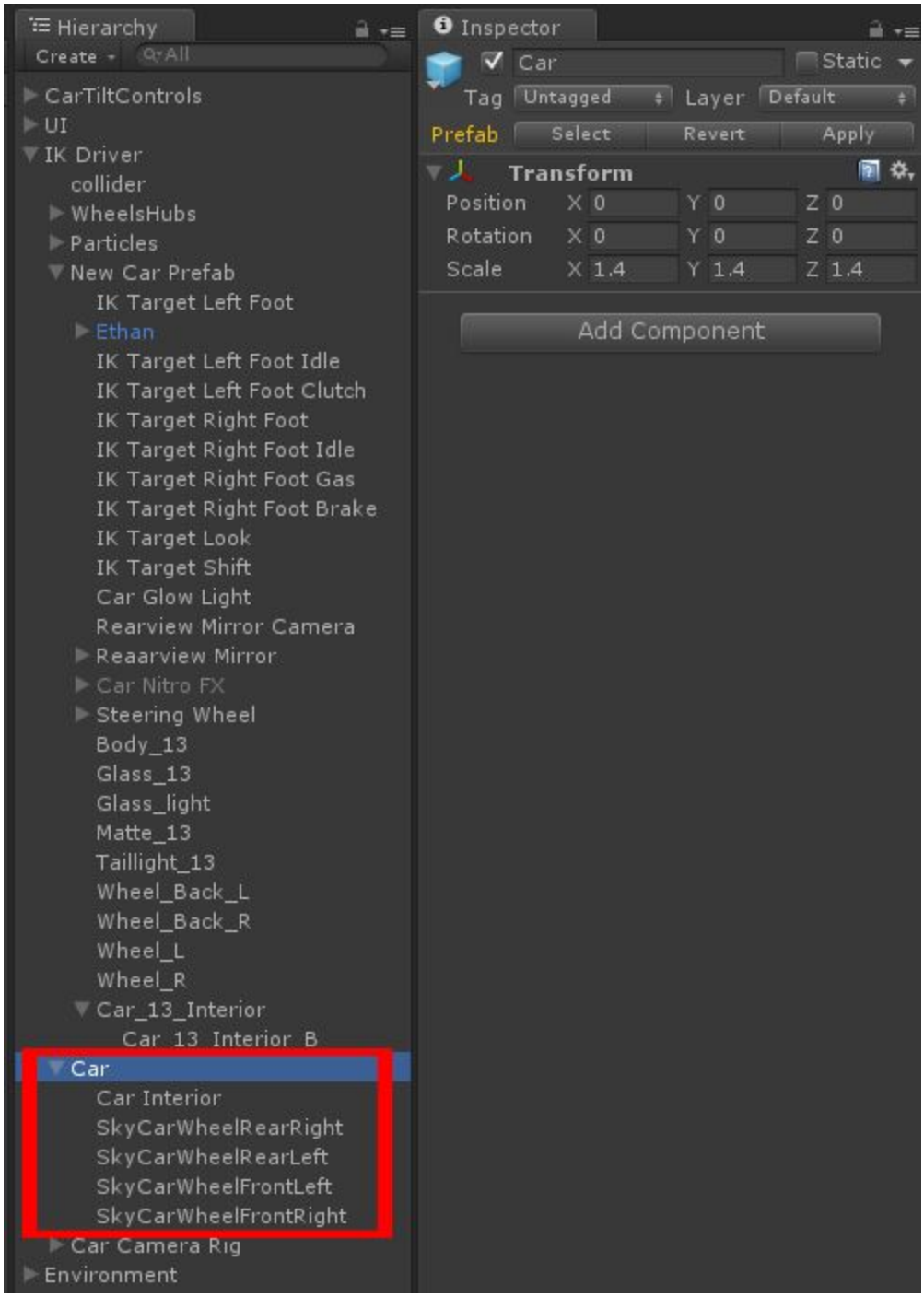
9. Move the new steering wheel model to be a child of the original Steering Wheel Rig.



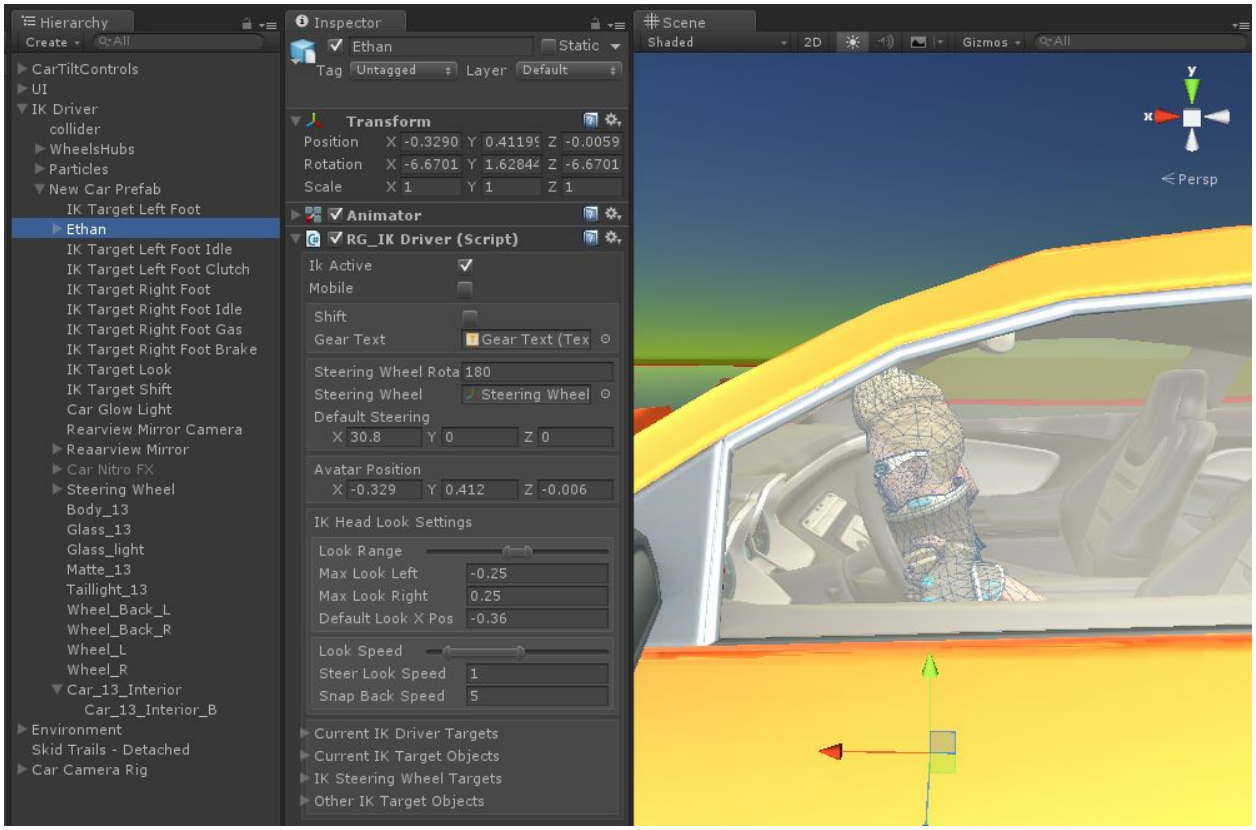
10. Move the avatar driver, all other IK targets, Car Nitro FX, Rearview Mirror / Camera, and Glow Light to your new car prefab.



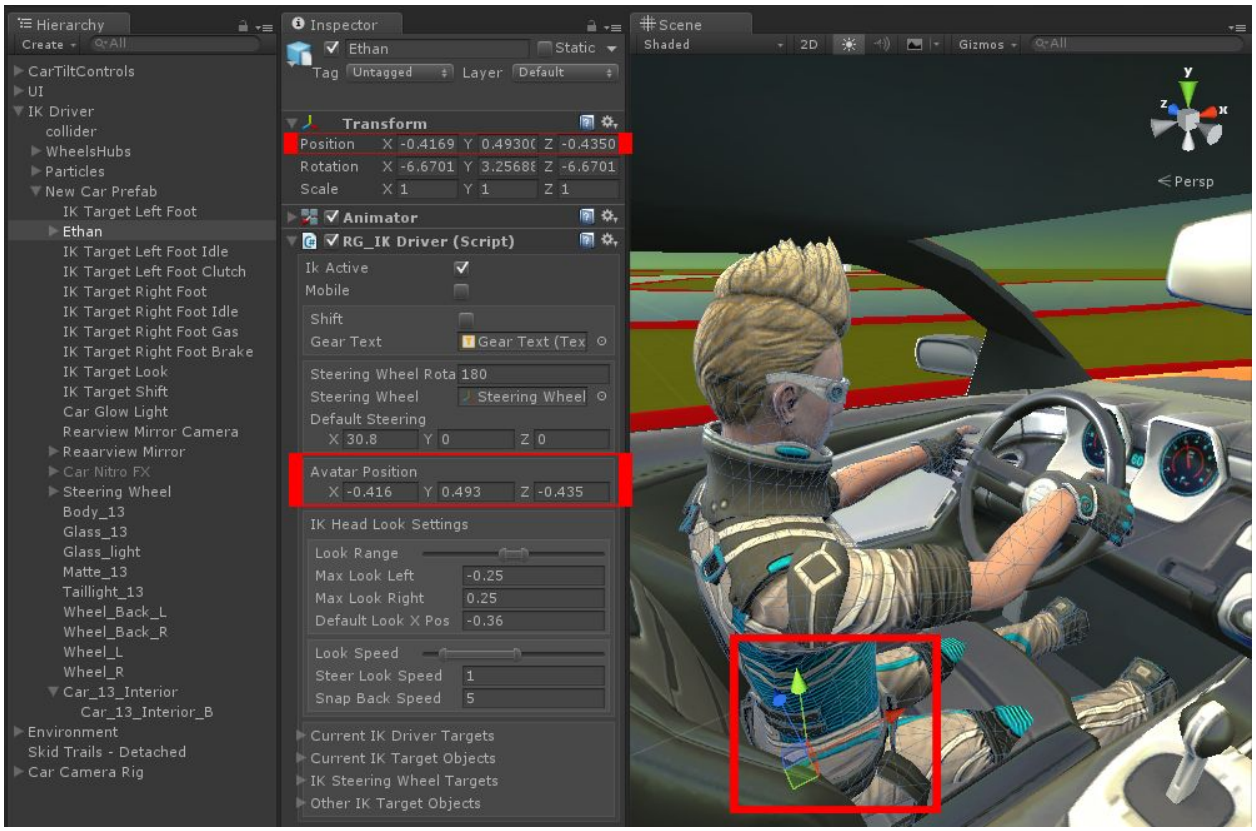
11. Delete the old car object and its children, this should only be the original car mesh objects.



12. You will likely need to reposition your avatar, we've already set the steering wheel position so now we need to adjust the avatar position and other IK Target positions. Enter play mode, here you can find the right transform position for the driver by moving it around to a position that looks appropriate, then make a reference to the avatars Vector3 Transform Position. Exit play mode and enter the position you choose into the "Avatar Position" field of the RG_IKDriver inspector. This will set the avatar's position in the Start method. This example shows the avatar need to be repositioned to his seat.



13. When you initially change the avatar position it will not all look right, the other IK targets need to be positioned to finalize the setup. Another reposition or more of the avatar may be necessary. Here for example, we can see the avatar's legs are below the seat. After adjusting the IK Foot Targets he will look better.



14. The IK Targets should also be adjusted in play mode to find the best settings at this point. If you want to make the avatar look as realistic as possible you will want to take your time configuring the IK Foot Target placement by making sure the position/rotation of the IK Target transforms are in appropriate locations. If the player will not see this area of the vehicle you do not need to be as precise. Your avatar's scale may also need to be adjusted to match the car scale. Adjust all IK targets to match the new interior and steering wheel locations for best animation results.
15. Fine-tune the positioning of your IK Targets to match the steering, shifter, brake, clutch, gas pedal locations your car.
16. Your car is now ready to use. Press play to drive it, switch to the helmet camera and adjust its position to find the best location for it. This may also take some fine tuning.