



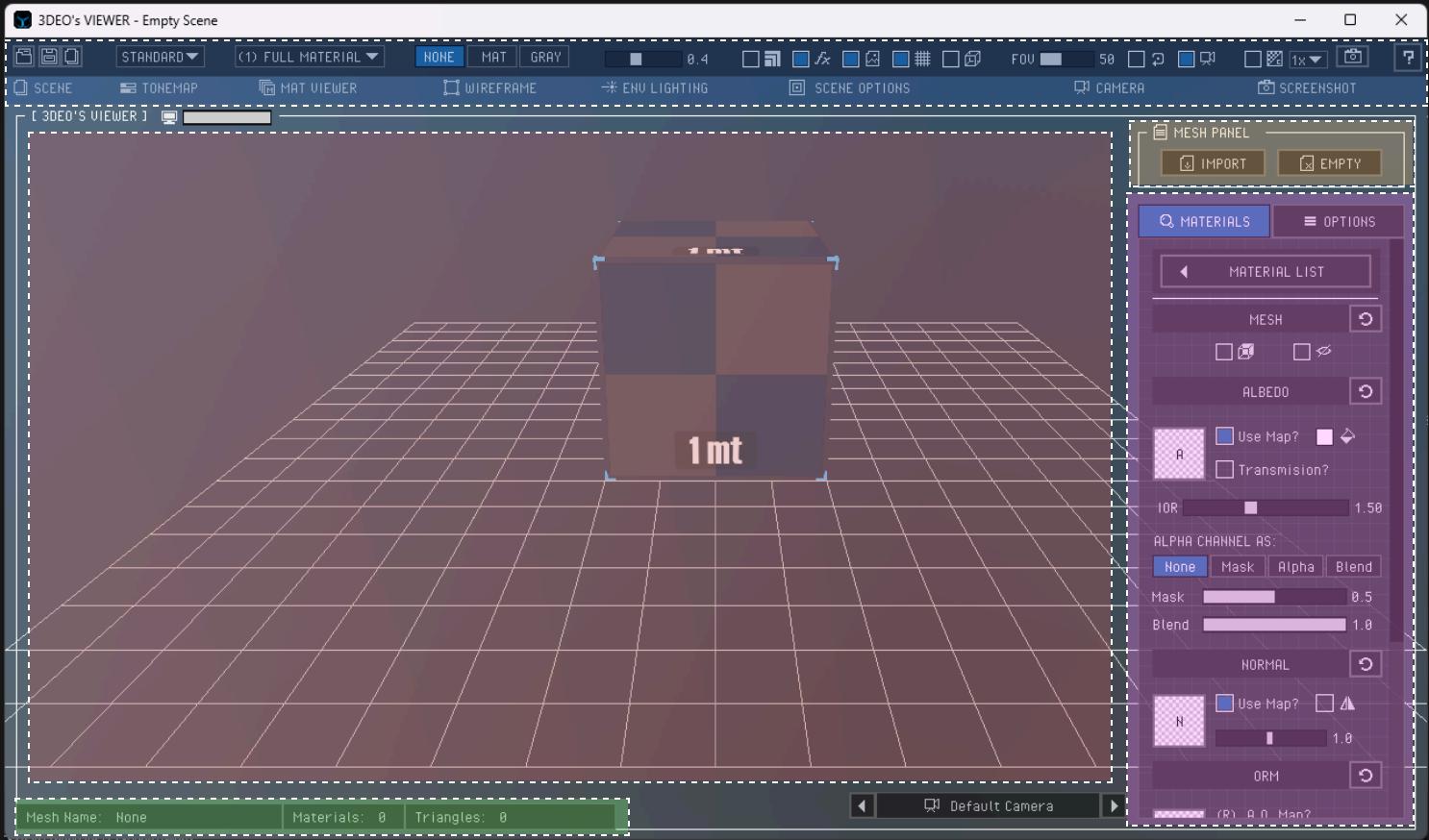
[3DEO's VIEWER DOCUMENTATION]

<https://deodatopr.github.io/deostools/>

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[What is 3Deo's Viewer]

It is a completely free tool with a very small disk size and no installation required. The purpose is to allow users to visualize 3D models before they are incorporated into a video game production, and is even developed to support meshes with a high poly count like photogrammetry scenes. It enables the viewing of content such as models, textures, lights, cameras, and visual effects, similar to what is done in a game engine. The key difference is that it is extremely intuitive and easy to use, regardless of the user's prior experience.

Note: [**LMB**: Left Mouse Button | **RMB**: Right Mouse Button | **SWB**: Scroll Wheel Button]

1. [VIEWER]

This is the most frequently used part of the application, as it is where the imported models are rendered.

- **Rotate Model:** Drag using the **LMB**. The rotation includes a slight acceleration, depending on the dragging speed.
- **Scroll Camera up/down:** Drag upward or downward using **LMB**.
- **Zoom:** Use **SWB** (up/down) to zoom in/out, speed will be adjusted progressively based on mesh size and proximity.
- **Panning:** Press and hold the **SWB** then drag up or down to pan the camera.
- **Opacity Control:** This feature controls the application opacity to allow you to overlay something else in the back.

Note: All of the options above are to use it with the 'Static Mode', and there is one mode extra (will be explained in the next pages in Camera Section).

2. [STATUS BAR]

Shows the 'Mesh Name', as well the 'Material and triangles count' from the imported file mesh(es).



3. [MESH PANEL]

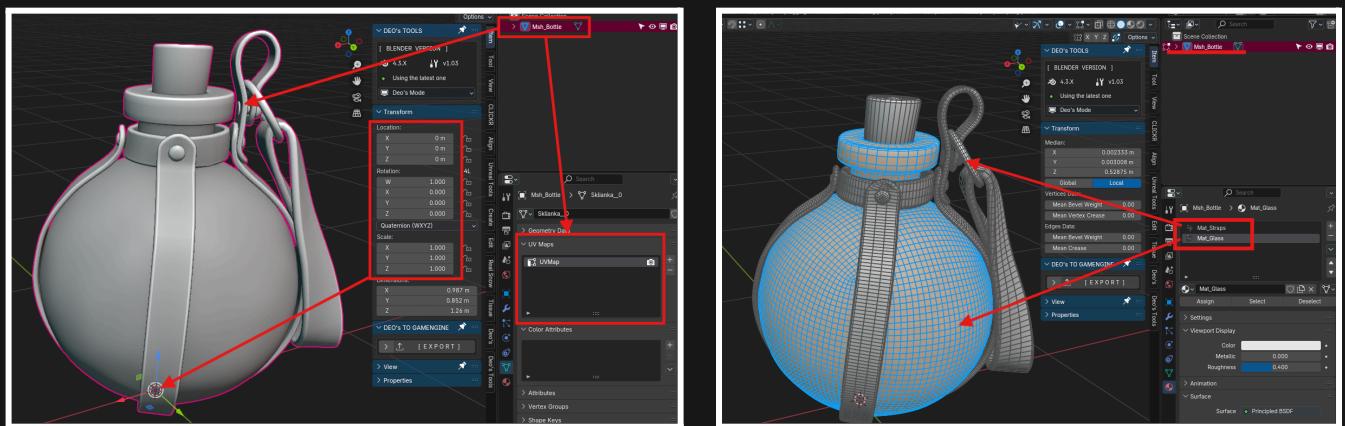
This allows you to use a 'File Browser' to select your mesh file and import it into the scene, the supported file formats include: ***.obj; *.gltf** (separate mesh/textures files) and ***.glb** (a binary file with mesh+textures embedded).

- **Import:** Allows you to import a Mesh at the center of the scene and the grid floor will adjust dynamically to the size of the mesh and the position of the box size reference.
- **Empty:** Allows you to clear the whole settings and remove the mesh file imported.



How to export a mesh from 3D Software to 3Deo's Viewer (e.g. Blender):

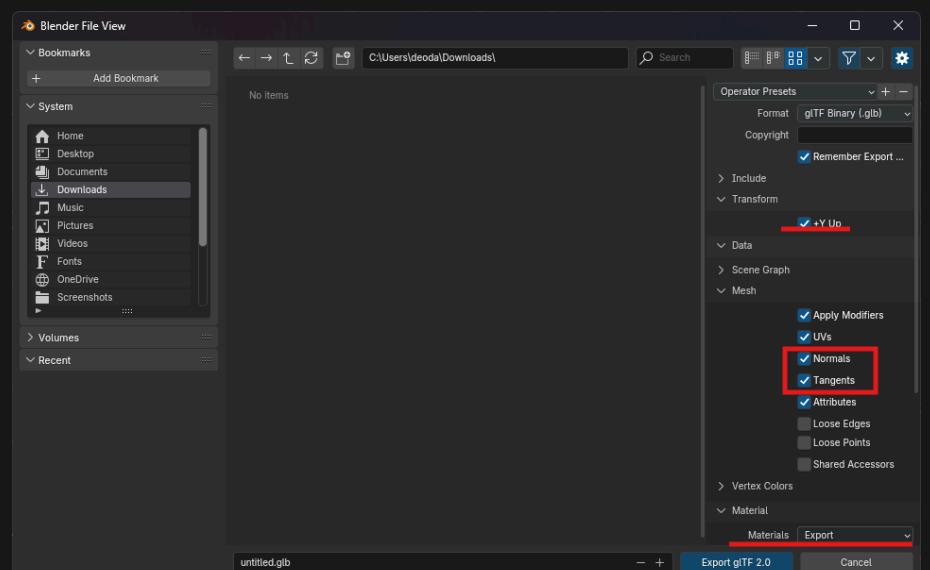
1. Center the mesh in the world and apply 'All transforms' to reset its Pos: (0,0,0), Rot: (0,0,0), and Scale: (1,1,1).
2. Your mesh can be split into multiple meshes or combined into a single mesh, but be sure to have only one UV Map Pass (Left Img).
3. Your mesh can have multiple materials. If it uses a single material but requires one part to simulate glass or a translucent effect, duplicate the material. Use one version for the opaque parts of the mesh and the other for the translucent parts (Right Img).



[Small Bottle from [shuvalov.dj](#)]

4. To correct exporting a mesh into 3Deo's Viewer or other game engine, export the normals at least, and tangents to better results.

Note 1: 3Deo's Viewer supports reading files without tangents; however, it is recommended to handle tangent calculations directly within the mesh to improve performance and accuracy.

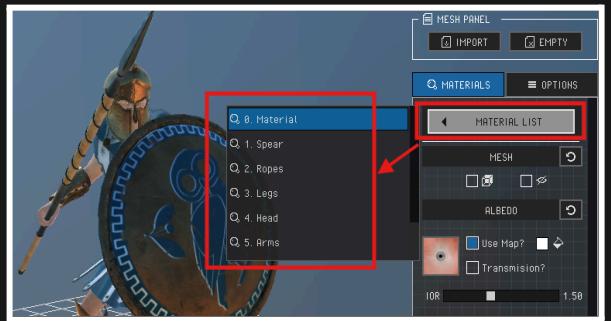


Note 2: Exporting as a ***.GLB** file (a single binary file with embedded textures) is the preferred method for efficiently exporting an entire scene in one step.

4. [MATERIAL PANEL] You can get per mesh each one of the materials implemented in the imported mesh using the Material Panel.

4.1 MATERIAL PANEL >> MATERIAL LIST: When you click on it, this will show you a 'Panel List', with the full list of materials from the mesh file imported.

When you click on any material you will see a 'blinking a red color' to show you the selected material what part of the mesh is it.

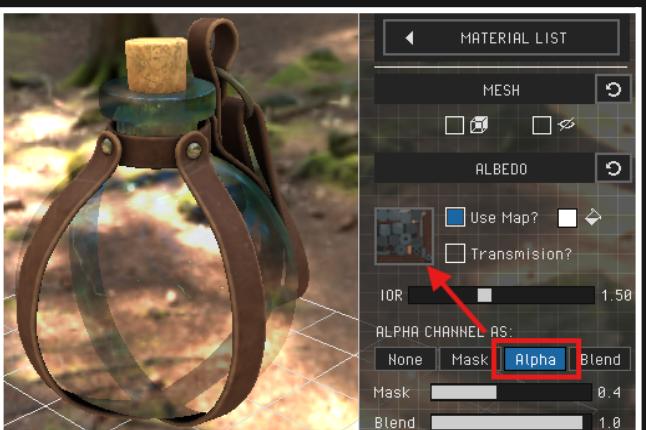
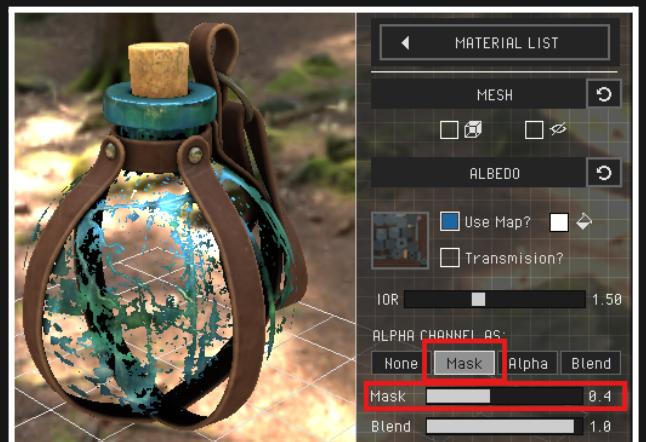
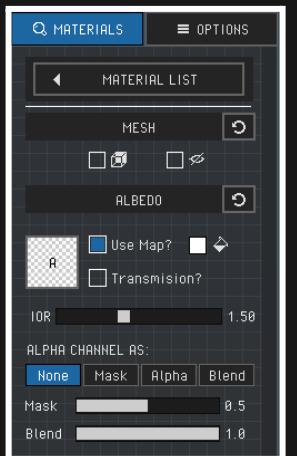


4.2 MATERIAL PANEL >> MESH: Allow per mesh to control the basis about the mesh:

- **Double Sided:** Allow back and front facing.
- **Hide Mesh:** Will be hidden by this part of the mesh that uses this material.

4.3 MATERIAL PANEL >> ALBEDO: Controls in general about the Base Color of the entire material selected.

- **Use Map?:** Allows you to enable the imported or selected base color map (RGB).
- **Color:** Allows you to tint the albedo map or use just this color alone if the color map is disabled.
- **Transmission?:** This will allow you to have a translucent and refractive mesh.
- **IOR:** Control the 'index of reflection' on the material, but if you are using transmission this will change to control the 'index of refraction' on the transmissive mesh mode.
- **Alpha Channel as None:** Disabled to use alpha transparency only as Opaque.
- **Alpha Channel as Mask:** Enable to use a Masked object using the Alpha from Albedo Map.
- **Alpha Channel as Alpha:** Enable the Alpha Blending (0-1) using the Alpha from Albedo Map.
- **Alpha Channel as Blend:** Enable to use Blending translucency from 0 to 1.



4.4 MATERIAL PANEL >> NORMAL:

Controls the amount of extra detail on the normals of the mesh using a normal map (RGB).

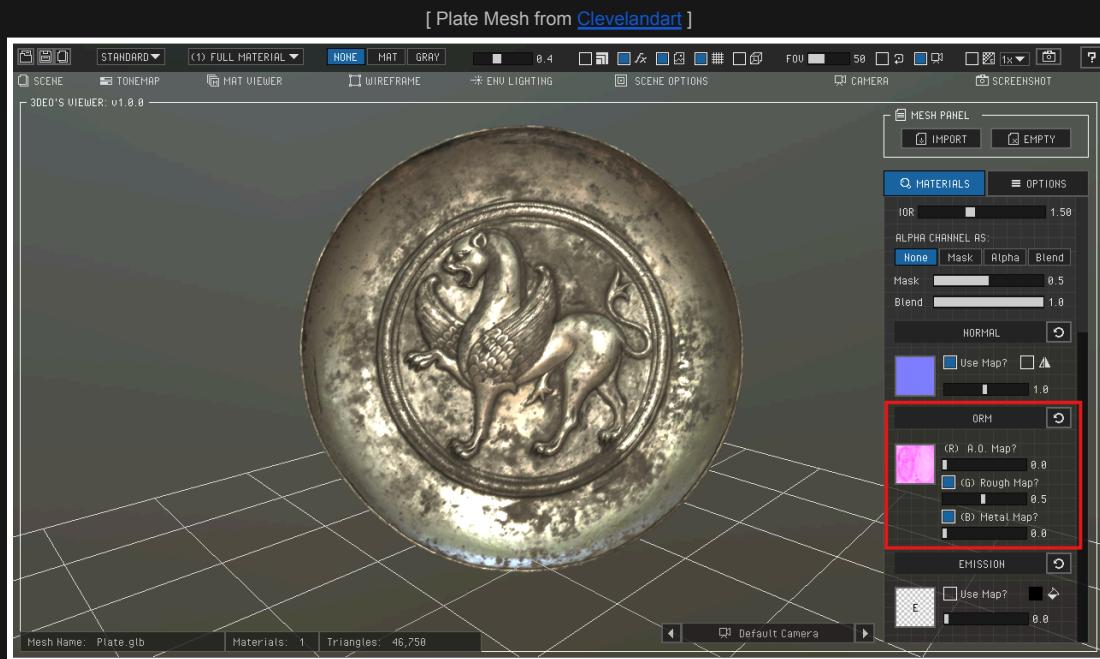
- Use Map?:** Allows you to use the imported or selected normal map in the current selected material from the Material list.
- Invert:** Allows you to invert the Normal map imported or selected Green Channel or OpenGI / DirectX Mode.
- Slider value:** Allows you to reduce or increment the normal map value from 0 to 1 (standard) from 1 to 2 (Extra power).



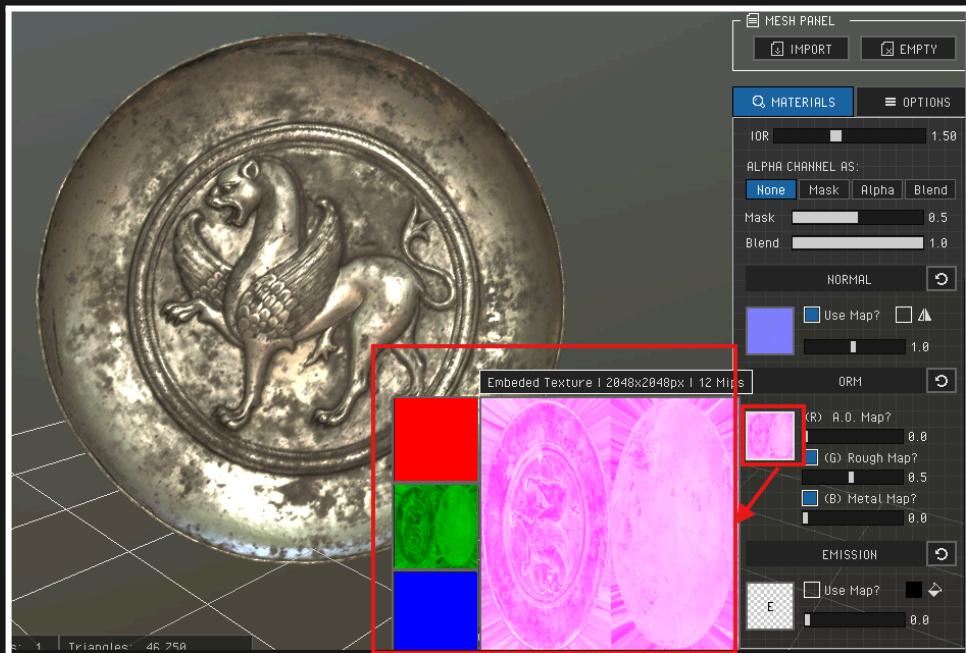
[Male Head Model from: [Ten24 Digital Capture](#)]

4.5 MATERIAL PANEL >> ORM: This Panel contains a texture array that stores multiple maps combined into a single texture using the RGB Channels to minimize memory usage on the video card, following best practices for both artists and performance optimization. These three maps are essential for achieving PBR material rendering, with each color channel storing the following (Red, Green, Blue):

- **(R) Ambient Occlusion Map:** The baked occluded contact shadow map.
 - **Slider:** Allows you to increase the contrast (Darkness) on the map in real time.
- **(G) Roughness Map:** The baked or textured map to control the light reflections.
 - **Toggle:** Allows to use the information from the channel in the ORM map to use it as roughness.
 - **Slider:** Allows you to control if the material goes from smoothness to Roughness.
- **(B) Metallic Map:** The baked or painted texture to assign what part is Metallic or Nonmetallic.
 - **Toggle:** Allows to use the information from the channel in the ORM map to use it as Metallic.
 - **Slider:** Allows you to control if the material goes from No Metal to Metallic.

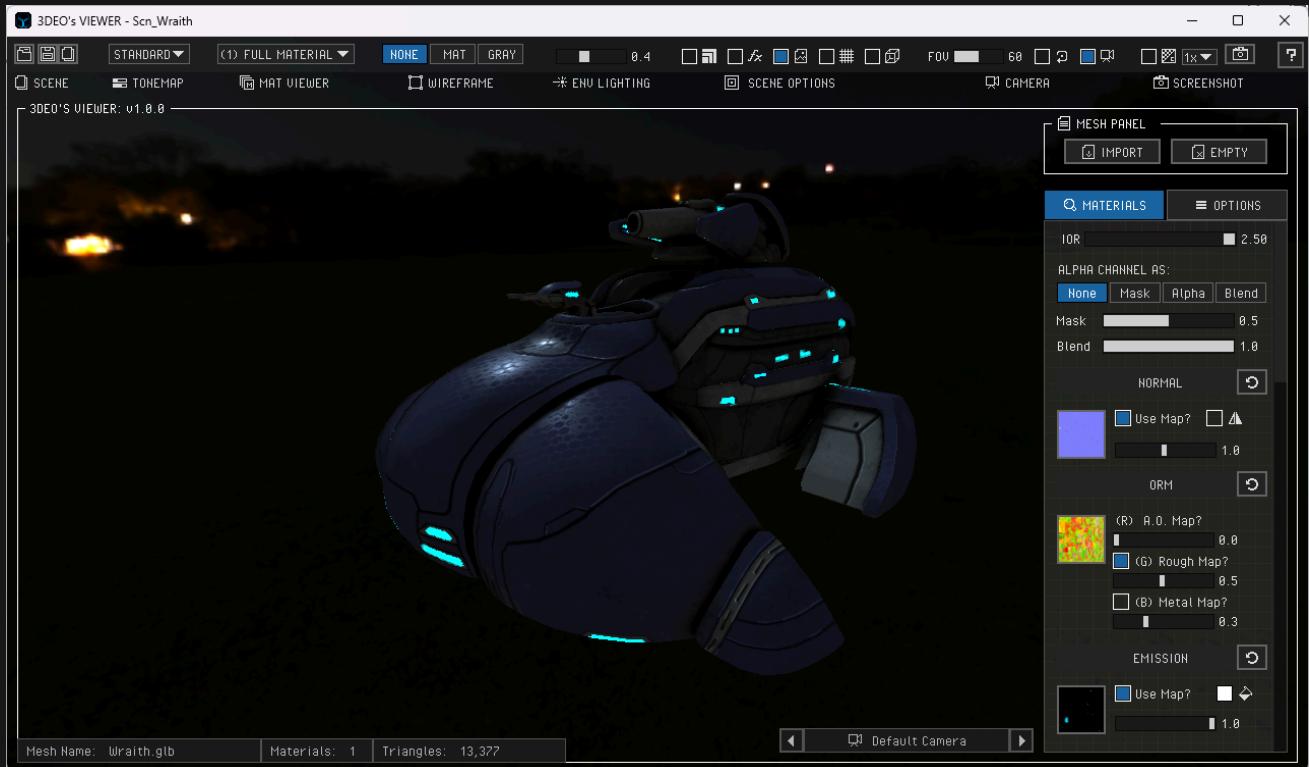


Hovering over the Image Viewer will display information about the map, including data for each channel.

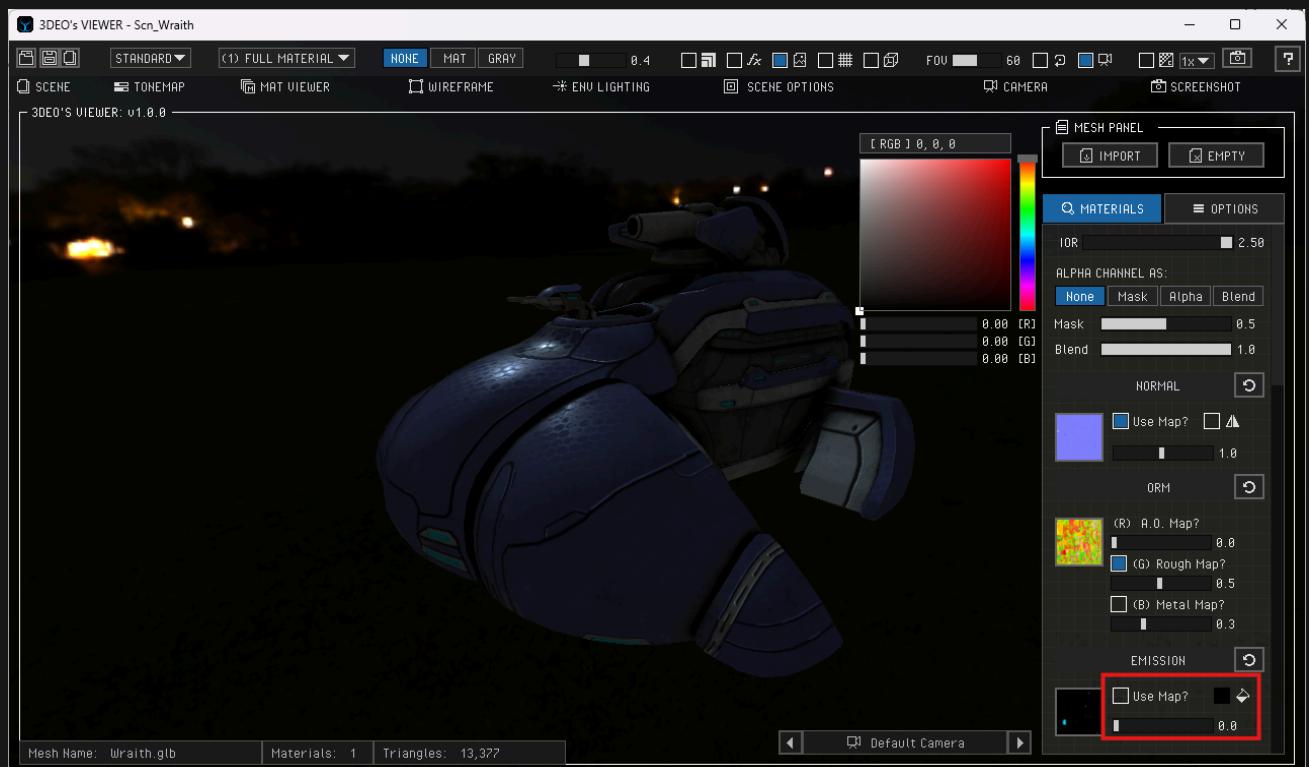


4.6 MATERIAL PANEL >> EMISSION: This Panel contains the options to control the Emission lights using a texture with color only in the parts that you would like to light up on the surface or use a complete material to use it as emission the surface in one shot.

- **Use Map?:** Allows you to use the imported or selected normal map in the current selected material from the Material list.
- **Color:** Allows you to tint the map if this one is just in black and white.
- **Slider value:** Allows you to reduce or increment the intensity of the emission, and combined with Bloom Effect will get a better look.



[Halo Fangame Wraith Model from [guillaume.bolis.neko](#)]



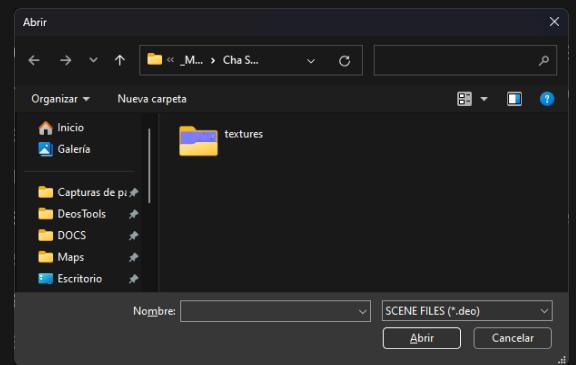
5. [TOP MENU]

This section provides the most frequently used options for efficiently managing the application. The layout of each icon section dynamically adapts to the window size, ensuring a fully responsive user interface.



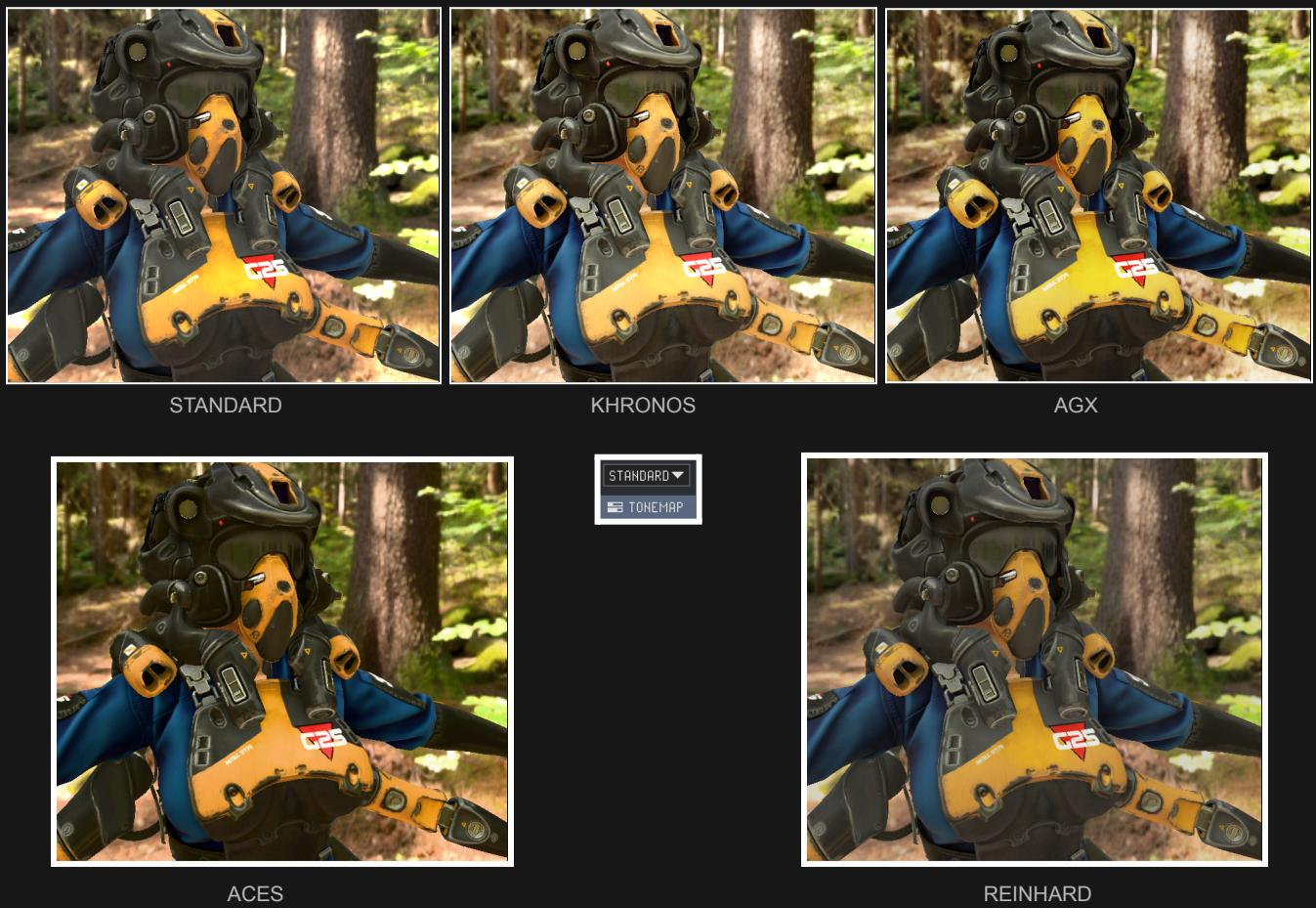
5.1 SCENE:

- **Save scene:** Allows you to save the current scene as a binary file. The operating system's file browser will open, enabling you to choose a specific location on your computer. This process saves all application settings and references to the mesh (Ctrl+S).
- **Save as:** Opens the file browser to specify a new file name or choose a different path for saving the scene (Ctrl+Shift+S).
- **Load scene:** Loads a previously saved scene file from your computer (Ctrl+O).



5.2 TONEMAP: Select between the most common tonemaps [Standard, Kronos, Agx, Aces or Reinhard]

[Mira Model from [Korpusenko](#)]



5.3 MAT VIEWER: The quickest way to visualize your mesh using the Material/Map Pass or Mat Debugger modes.

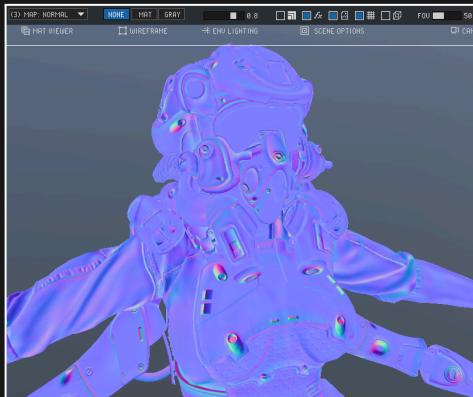
- **Full Material:** Use it to visualize the entire PBR (Physically Based Rendering) pipeline.
- **By Maps:** Isolate map in the mesh, like Color, Normal, Rough, Metal, AO, Emission, and Alpha.
- **By Mat:** Debug Roughness / Metallic Modes Materials that interact with the env lighting reflection.



FULL MATERIAL (Key-1)



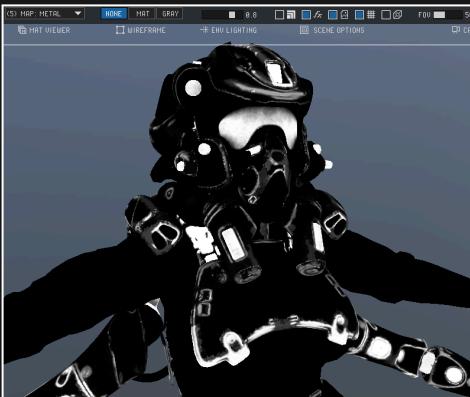
ALBEDO MAP (Key-2)



NORMAL MAP (Key-3)



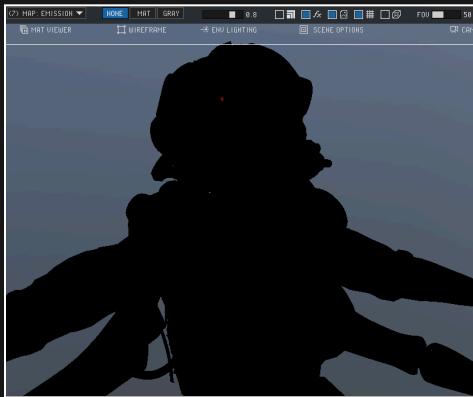
ROUGHNESS MAP (Key-4)



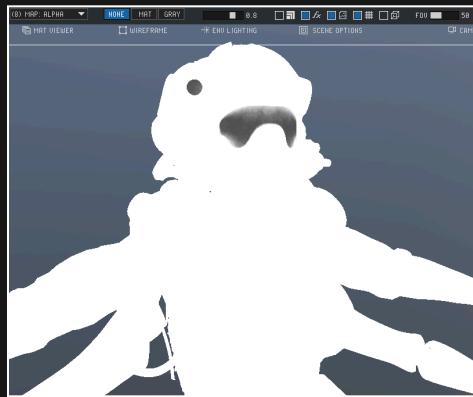
METALLIC MAP (Key-5)



AO MAP (Key-6)



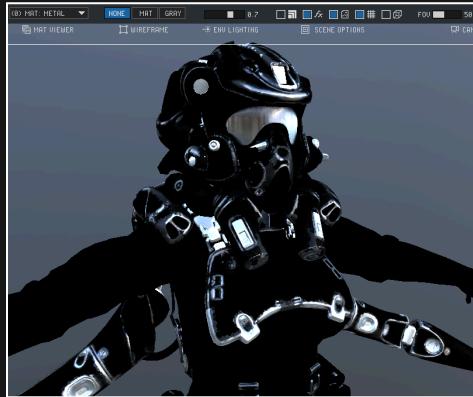
EMISSION MAP (Key-7)



ALPHA MAP (Key-8)



MAT DEBUG ROUGHNESS (Key-9)



MAT DEBUG METALLIC (Key-0)

5.4 WIREFRAME:

Switch between different modes to visualize only the wireframe of the loaded meshes.

- **None:** Disables the wireframe mode, reverting to the "Mat Viewer" mode.
- **Mat:** Displays the mesh in wireframe mode, using colors from the "Mat Viewer," such as Color, AO, etc.
- **Gray:** Displays the mesh in grayscale, with color influenced by the light environment.



[Male Head Model from: [Ten24 Digital Capture](#).]

5.5 ENV LIGHTING:

Controls both the Sun and Sky light intensity simultaneously from 0 to 1.

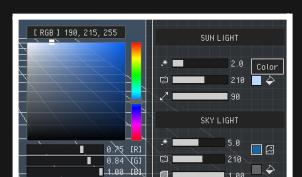
1. **Sun Light** (Direct light) The position of this light does not matter; only its rotations and intensity affect the surfaces. The light is distributed evenly across all surfaces in the scene.
2. **Sky Light:** (Indirect light) This light simulates Global Illumination (GI), contributing to the light energy emitted from the sky.



The **Environment Lighting Panel** is located at: **RIGHT PANEL > OPTIONS > ENVIRONMENT**

5.5.1 ENV LIGHTING >> ENVIRONMENT: SUN LIGHT

- **Intensity:** Controls the amount of light energy that contributes to illuminating the surface.
- **Rotation:** Controls the rotation from 0 to 360 degrees, which can be adjusted by dragging the RMB.
- **Tilt:** Controls the tilt of the light, adjusting the angle to direct it either downward or upward in the scene.
- **Color:** Controls manually the RGB colors of the light visualizing values in RGB 0-1 / 0-255.



5.5.2 ENV LIGHTING >> ENVIRONMENT: SKY LIGHT

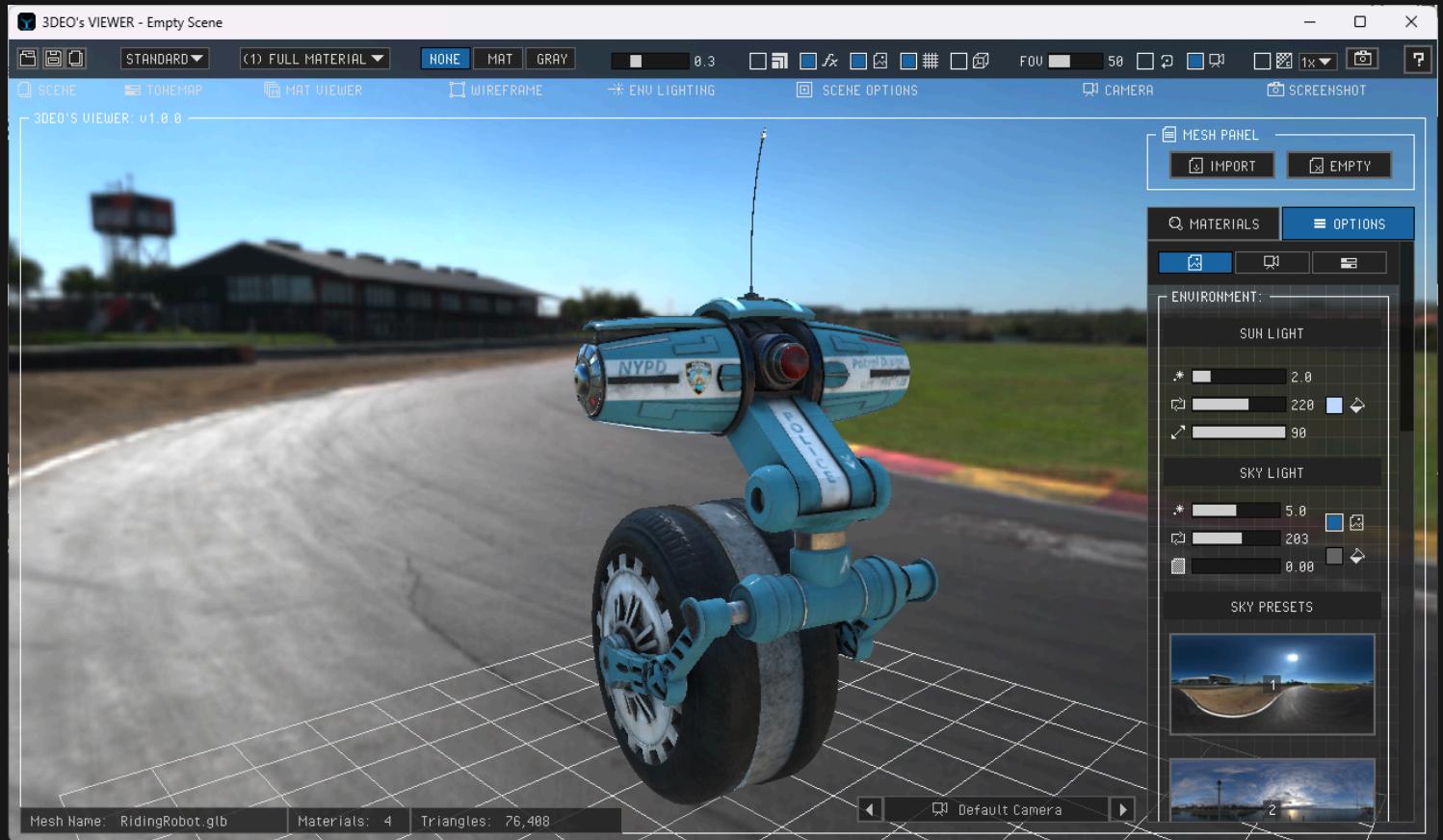
- **Intensity:** Controls the amount of light energy that contributes to illuminating the surface.
- **Rotation:** Controls the rotation from 0 to 360 degrees, which can be adjusted by dragging the RMB.
- **Blur:** Controls the amount of blurriness in the sky, allowing you to achieve either a sharp or blurred image.
- **Sky:** Controls if you need to show the background image or just the flat color in the back.
- **Color:** Controls manually the RGB (0-1 / 0-255) colors when the Sky Background is hidden.



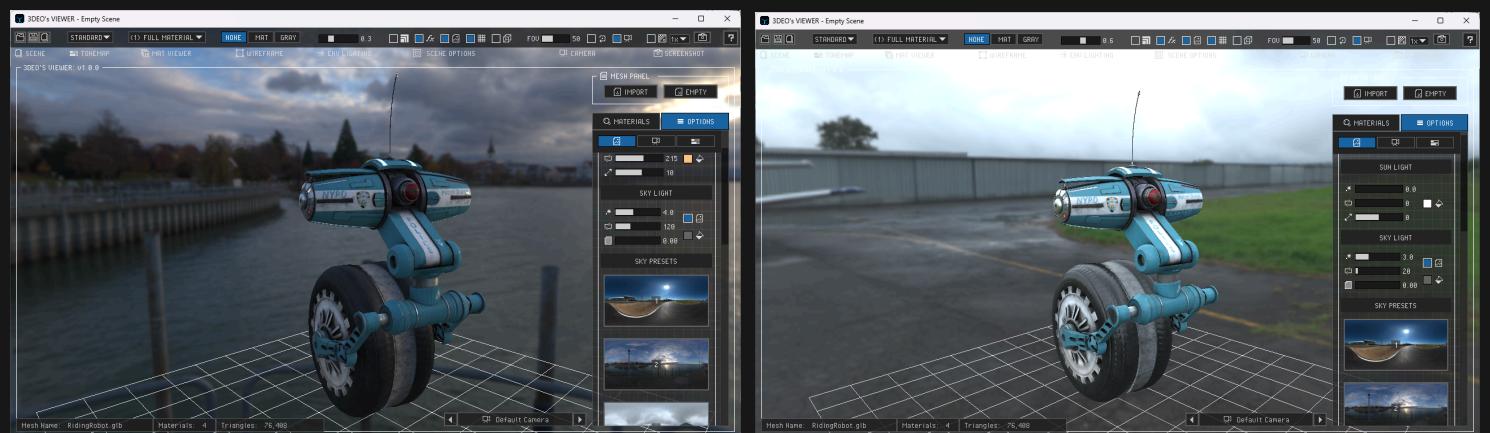
5.5.3 ENV LIGHTING >> ENVIRONMENT: SKY PRESETS

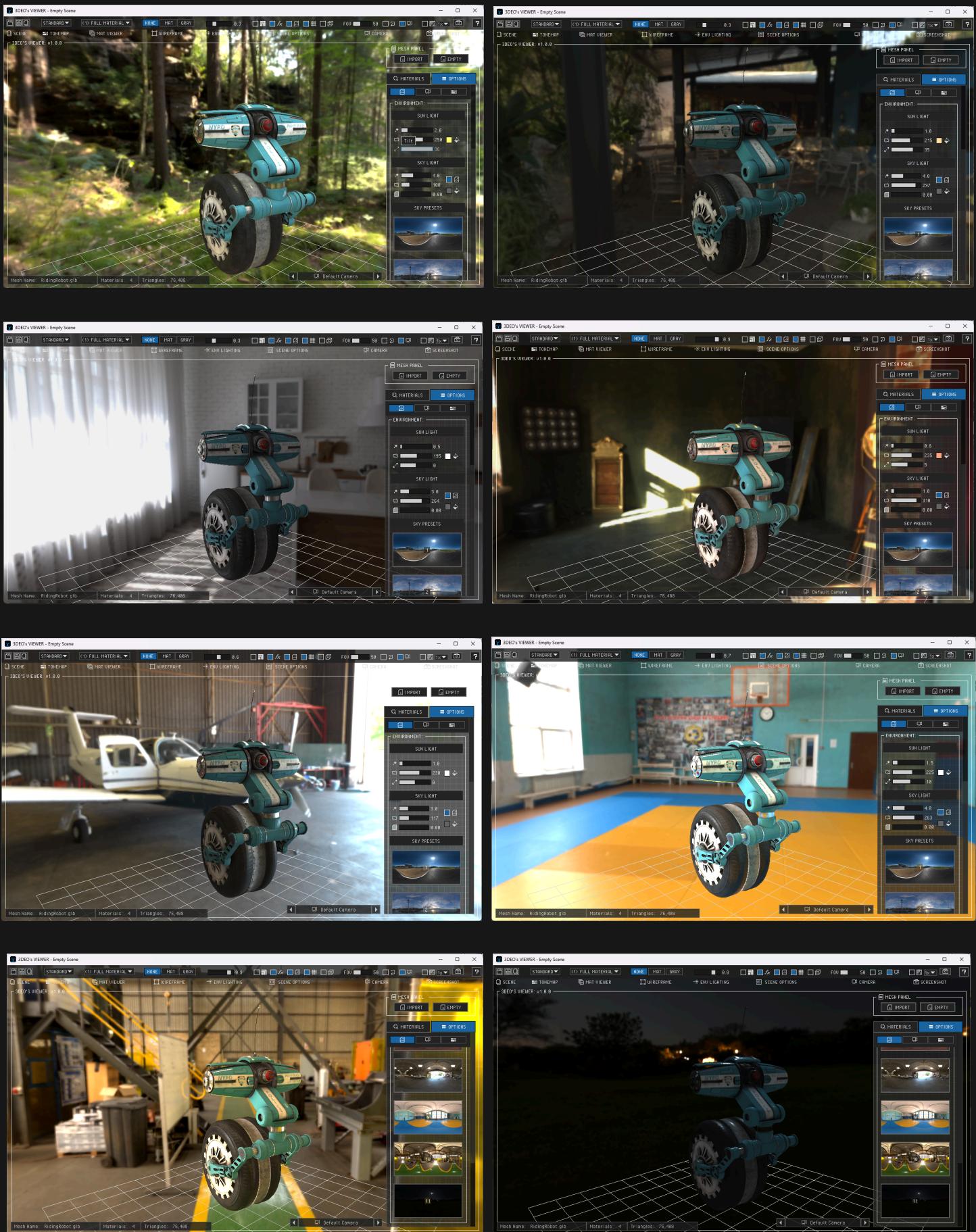
This section contains a library for selecting from a variety of environments (e.g., daylight, sunset, nightlight, etc.). Each environment automatically adjusts the Sun and Sky light parameters to simulate the corresponding scene selected.

[Panoramic Images from [Polyhaven](#)]



[Riding Robot Mesh from [Estebob](#)]





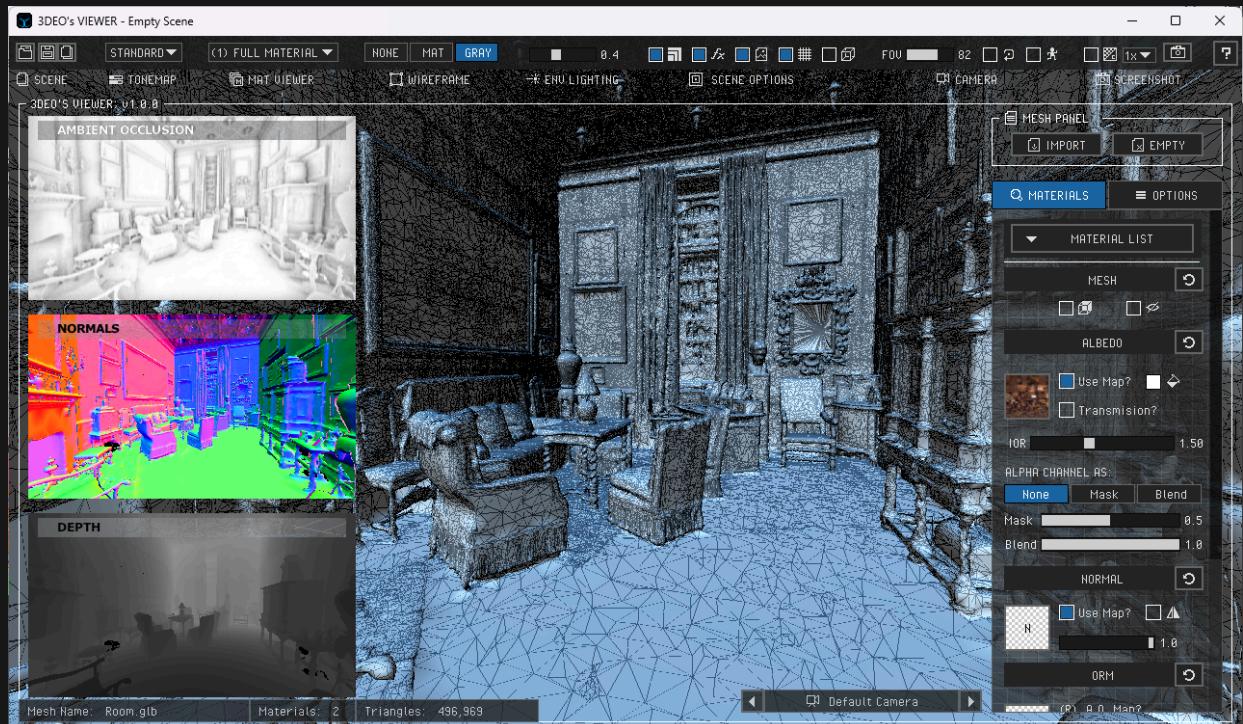
5.6 SCENE OPTIONS: Toggles multiple types of options inside of the application, like: objects, skies, debugger, visual effects, etc.

5.6.1 Scene Options >> Debugger Passes: This toggle allows you to show/hide the 3 main passes to debug:

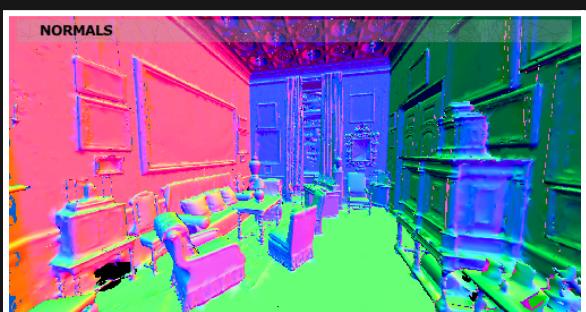
- o **SSAO:** Screen Space Ambient Occlusion.
- o **NORMALS:** Mesh Normals and Normal maps from the model.
- o **DEPTH:** The normalized Z Depth from the scene useful for Depth of Field (DOF).



Shortcut: Enter Key



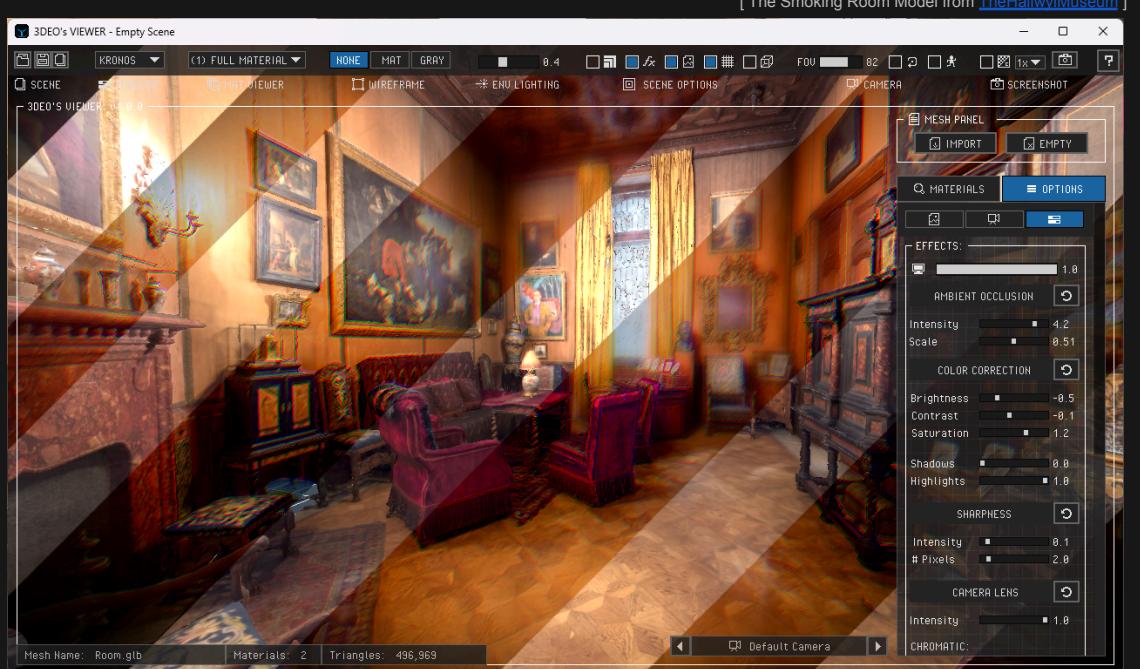
[The Smoking Room Model from [TheHallwayMuseum](#)]



5.6.2 Scene Options >> Post Process Effects: This toggle the full post process effects from the entire scene in just one shot.

The Visual Effects Panel is located at: **RIGHT PANEL > OPTIONS > EFFECTS**

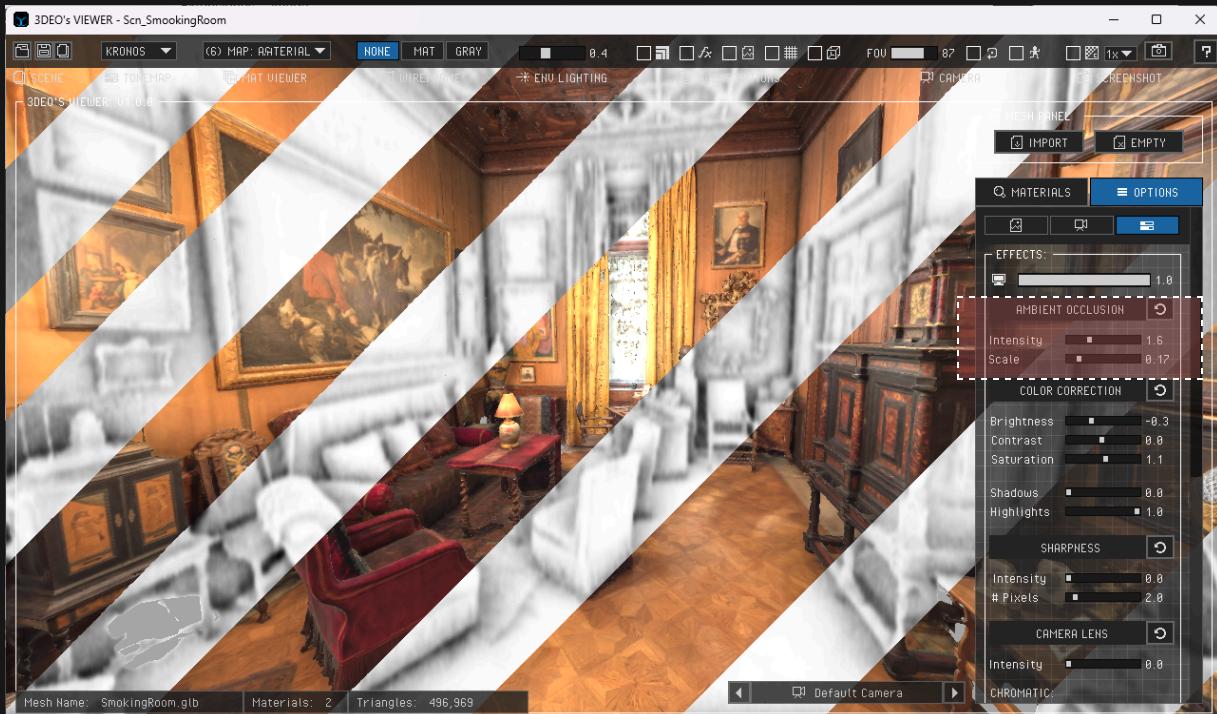
Shortcut: Space key



5.6.2.A Scene Options >> Effects: Screen Space Ambient Occlusion (SSAO)

Adds a screen-space occlusion pass to enhance the contact shadows between meshes. This feature includes two adjustable parameters:

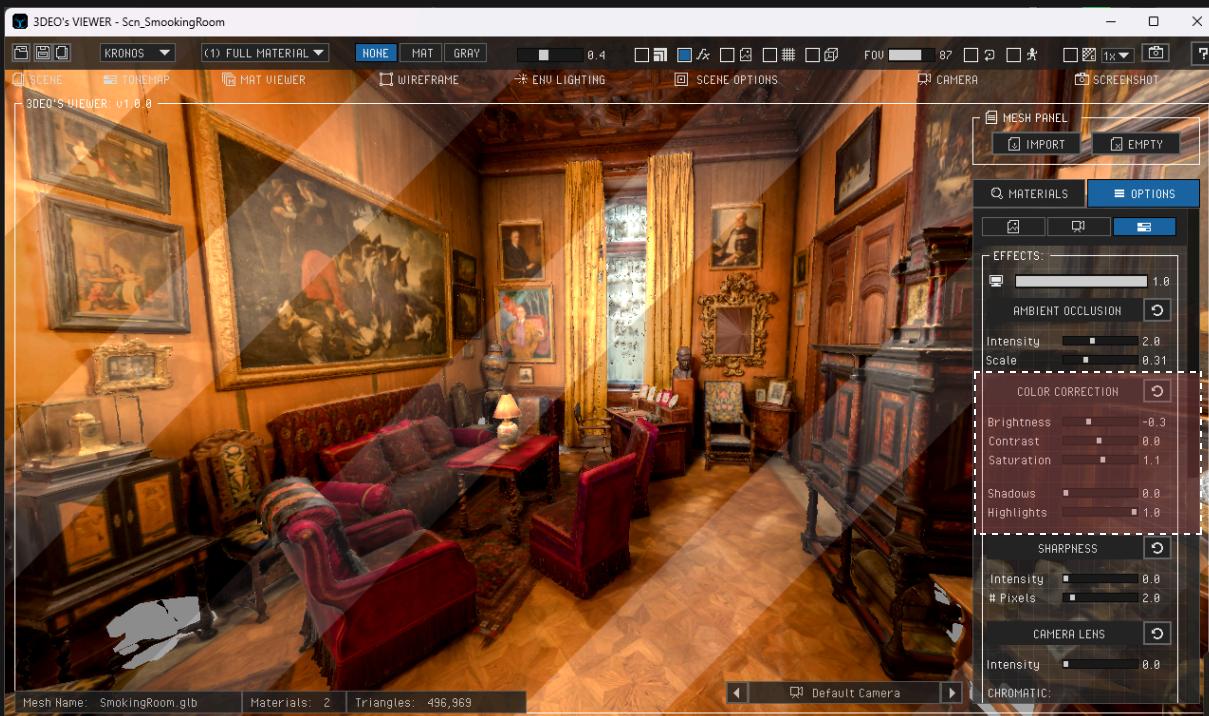
- **Intensity:** Increases the darkness of the contact shadows.
- **Scale:** Controls the size of the occlusion in screen space, independent of the scene's scale, making this parameter easy to use across different types of scenes.



5.6.2.B Scene Options >> Effects >> Color Correction

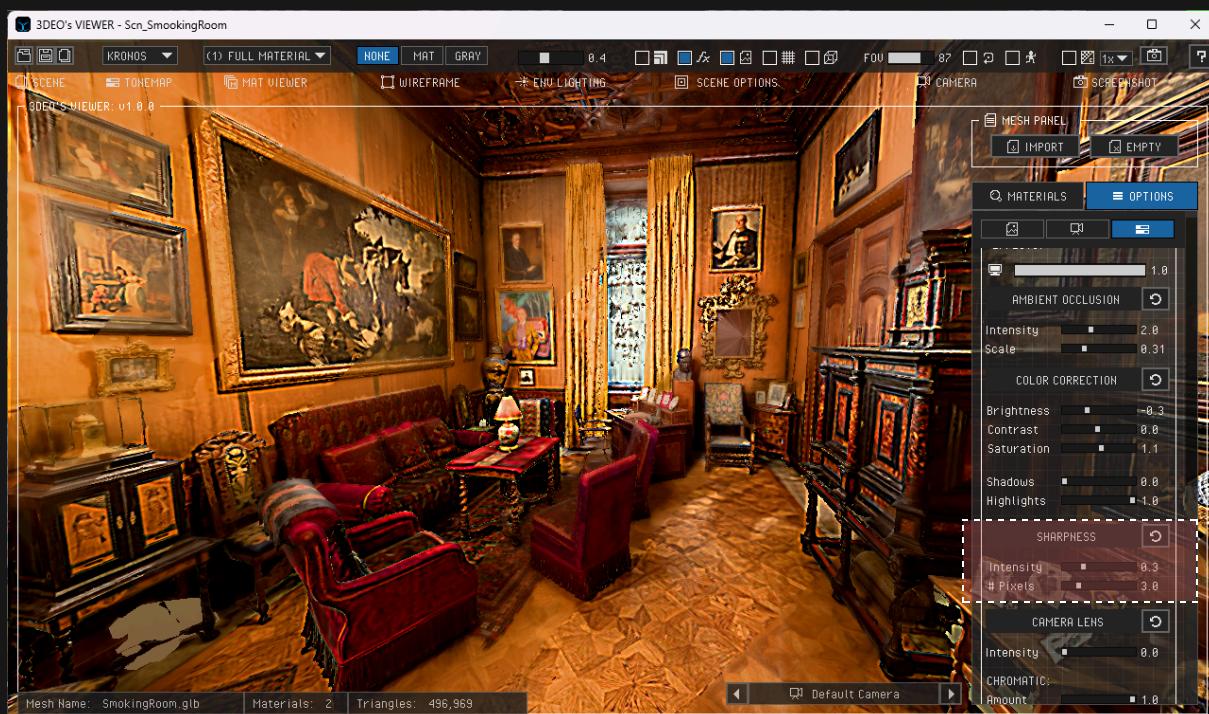
This feature provides options that allow you to achieve the desired look and feel for any scene with ease.

- **Brightness:** Adjusts the overall lightness or darkness of the image.
- **Contrast:** Modifies the difference between the light and dark areas to enhance details.
- **Saturation:** Controls the intensity of the colors, allowing you to make them more vivid or muted.
- **Curves:** Offers precise control over the tonal range of the image through customizable curve adjustments.



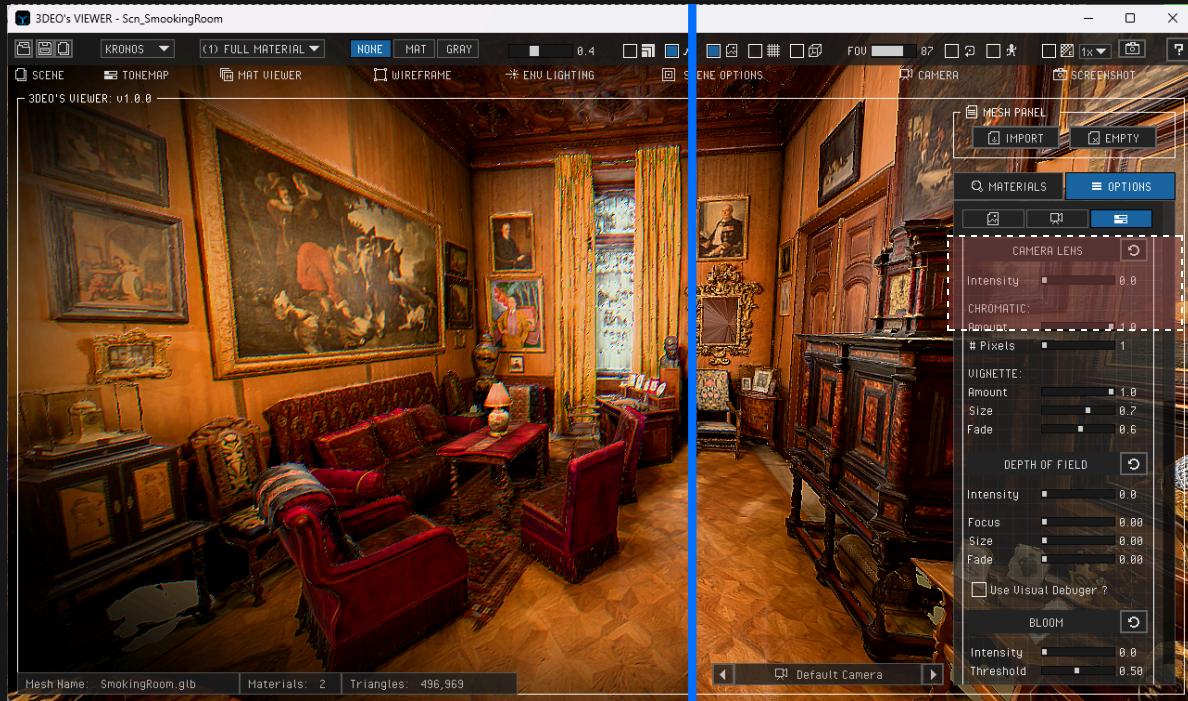
5.6.2.C Scene Options >> Effects >> Sharpen

Enhances the clarity of your scene by increasing the definition of edges and fine details. This effect makes textures and features stand out more prominently, improving overall visual sharpness.



5.6.2.D Scene Options >> Effects >> Camera Lens: Simulates various lens effects to enhance the realism and artistic quality of the scene. These effects replicate imperfections and stylistic features commonly seen in real-world camera lenses.

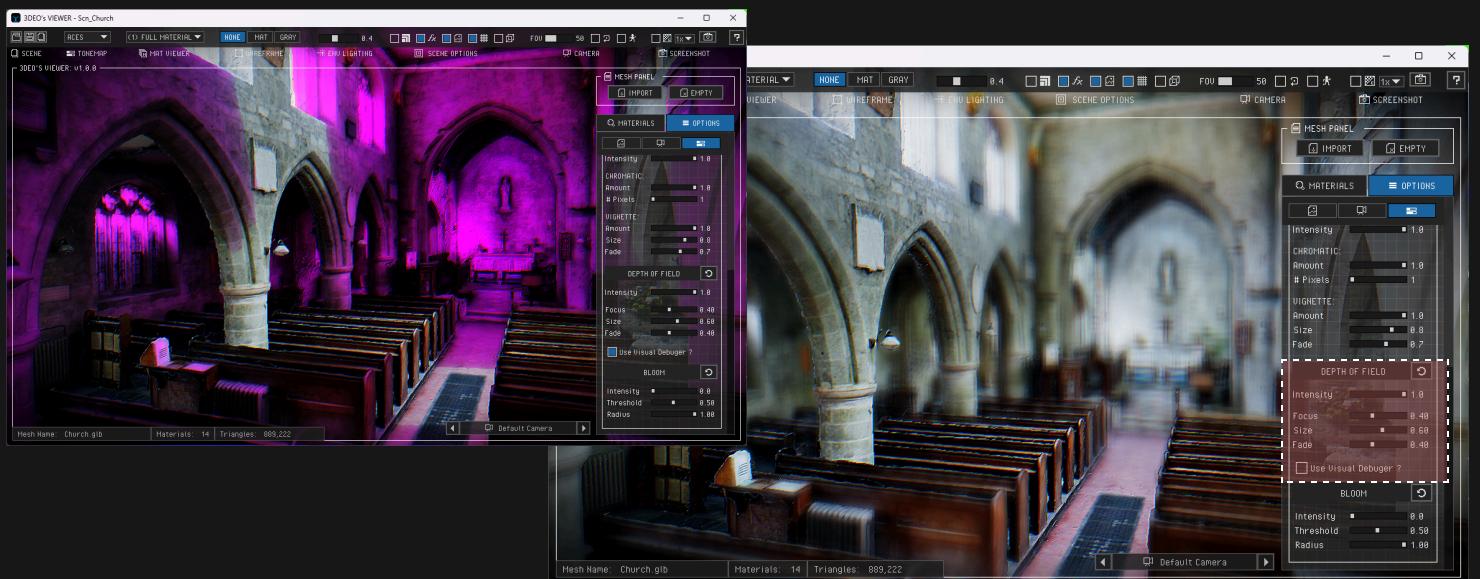
- **Chromatic Aberration:** Subtle color fringing effect along the edges of objects, simulating the dispersion of light through a lens.
- **Vignette:** Darkens the corners of the screen to draw focus toward the center, creating a cinematic look.



5.6.2.E Scene Options >> Effects >> Depth of Field (DOF): Simulates the natural focus behavior of a camera lens, creating a realistic sense of depth by blurring areas outside the focus point. This effect is ideal for emphasizing specific elements in a scene while softening the background or foreground.

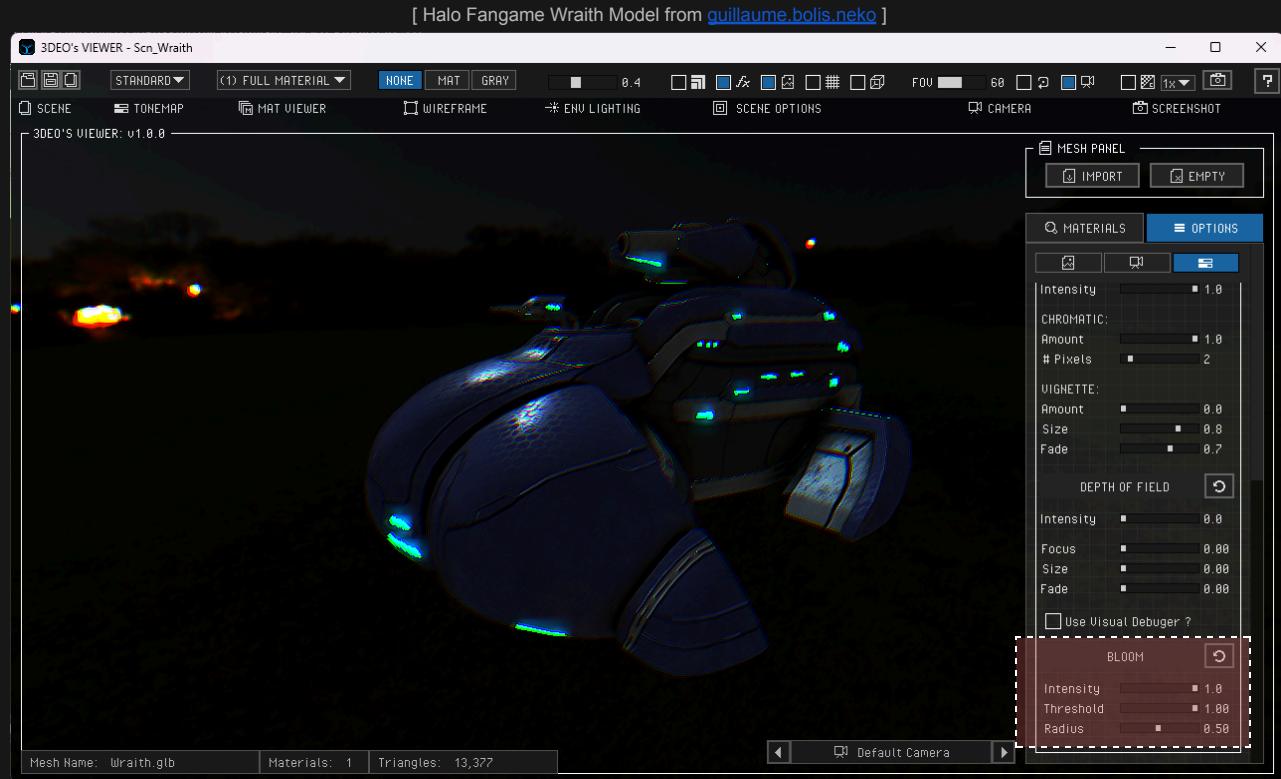
- **Focus:** Sets the distance from the camera to the focal point, determining which part of the scene remains sharp.
- **Size of Focus:** Adjusts the depth of the focal area, controlling how much of the scene is in focus.
- **Fade Focus:** Smoothly transitions between focused and blurred areas, ensuring a natural and visually pleasing effect.
- **Visual Debug:** Allows you to visualize in a easy and fast way in a purple color where is the focus and the size of the DOF.

[Church Of St Peter Stourton Model from [Artfletch](#)]



5.6.2.F Scene Options >> Effects >> Bloom: Creates a glowing effect around bright areas of the scene, enhancing highlights and adding a sense of realism or stylized aesthetics. This effect is commonly used to simulate light diffusion and intensity.

- **Threshold:** Determines the brightness level at which bloom is applied, allowing you to control which parts of the scene emit the glow.
- **Radius:** Adjusts the spread of the glow, controlling how far the light diffuses from the bright areas.

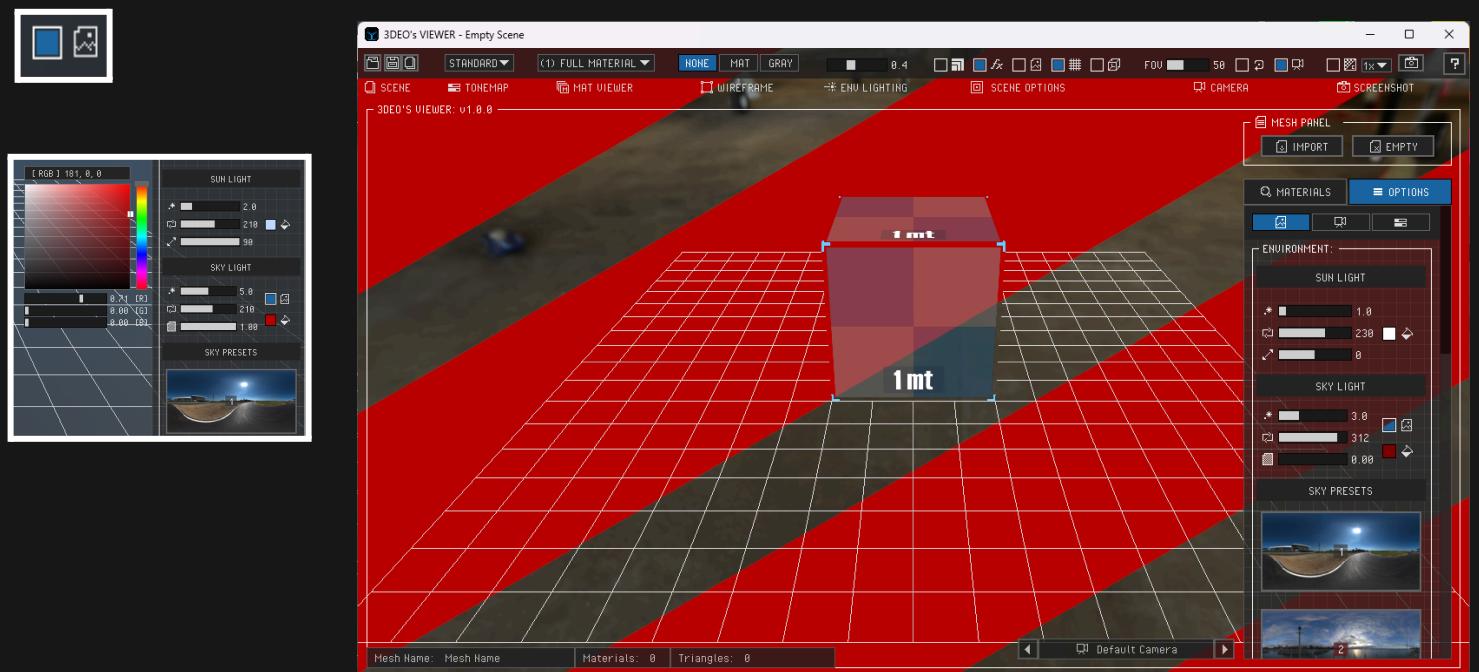


5.6.3 Scene Options >> Env Sky: This toggle allows you to switch between using a Sky Image or the Sky Color Picker.

- **Sky Image:** Derived from the Sky Preset Library selected in the Environment Panel.
- **Sky Color:** When the Sky Image is hidden, the RGB Color Picker can be used to set the Sky Color.

Shortcut: E key

The **Environment Panel** is located at: **RIGHT PANEL > OPTIONS > ENVIRONMENT**



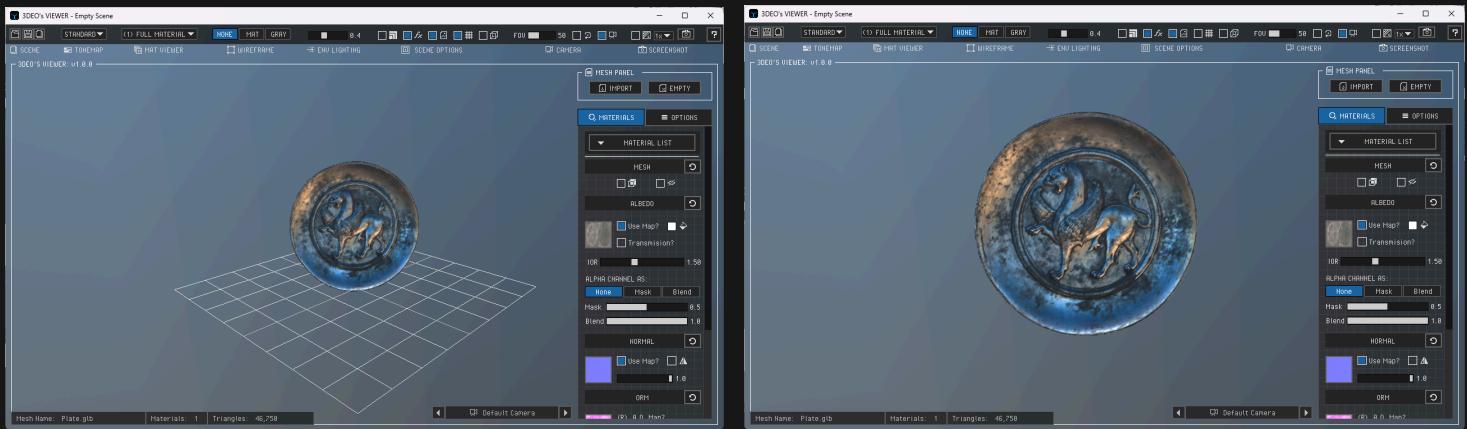
5.6.4 Scene Options >> Grid Floor:

This toggle allows you to show or hide the grid floor. The grid's range automatically adjusts to match the size of the mesh.

Shortcut: G key



[Plate Mesh from [Clevelandart](#)]



5.6.5 Scene Options >> Box Size:

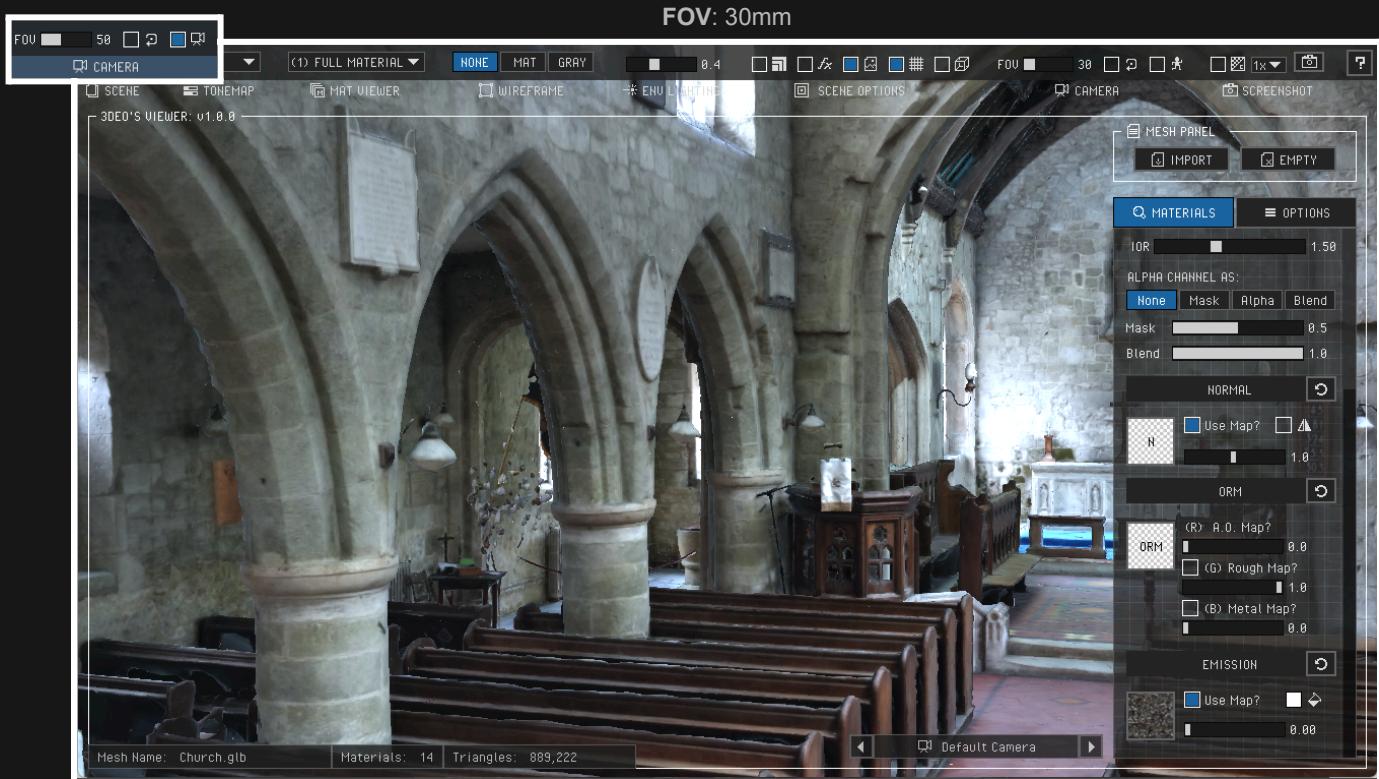
This toggle allows you to show or hide a 1x1x1 meter box, serving as a reference for comparing the real scale of your models. The box always appears in the left corner of the grid, which automatically adjusts its size based on the imported mesh.

Shortcut: B key

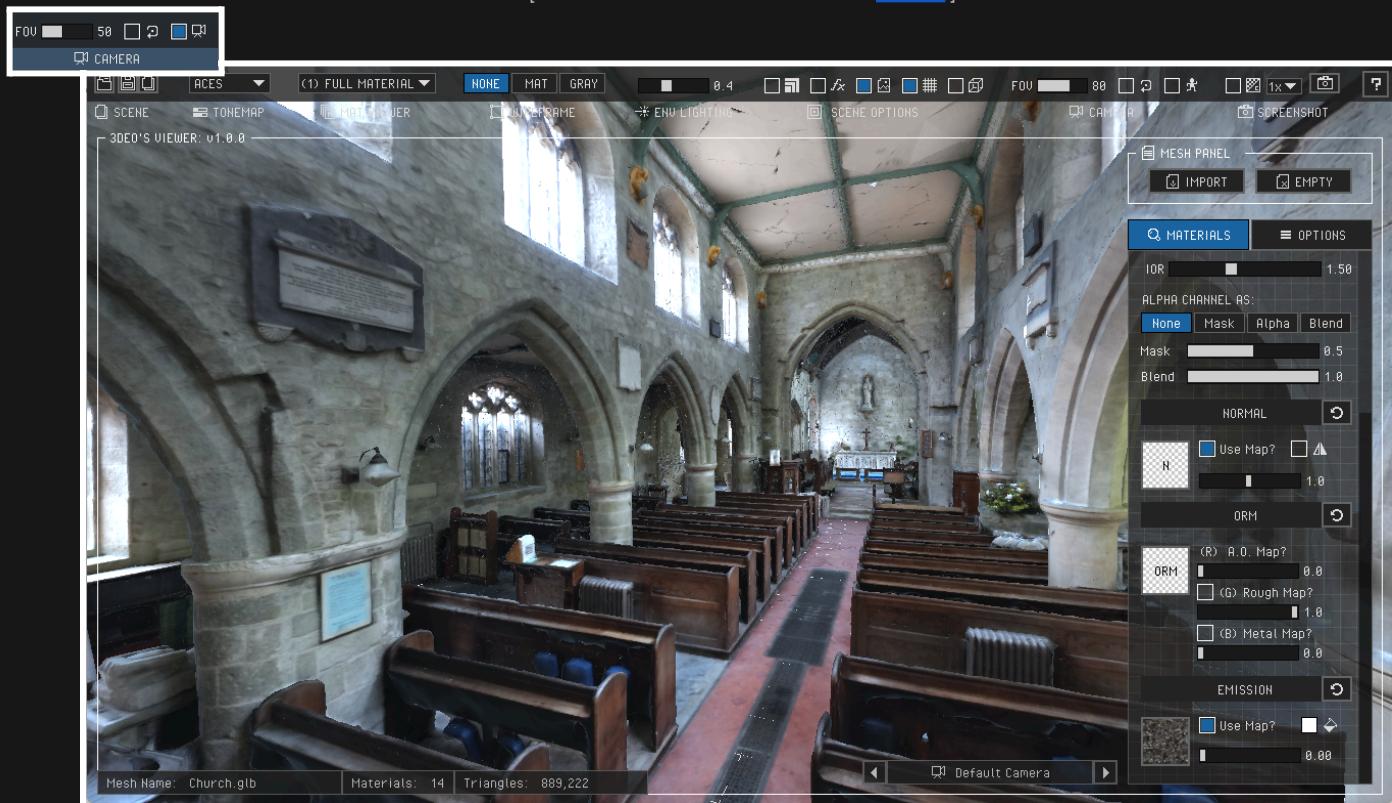


5.7 Camera: This section includes the basic options for controlling camera properties and selecting the camera mode.

5.7.1 Camera >> FOV: Control the Field of View (FOV) of the current camera in the scene, ranging from 1 to 120 mm.



[Church Of St Peter Stourton Model from [Artfletch](#)]



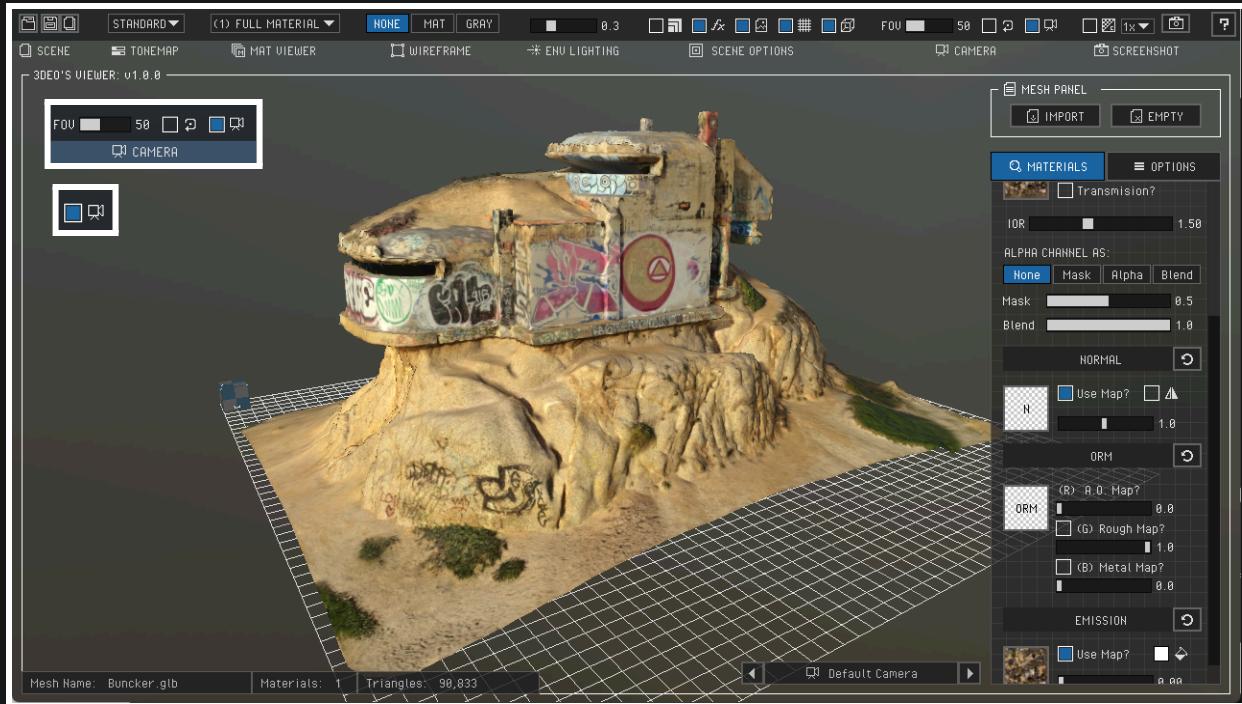
FOV: 80mm

5.7.2 Camera > Orbit: There are two types of Orbit, and this option will automatically adjust according to the active Camera Mode.

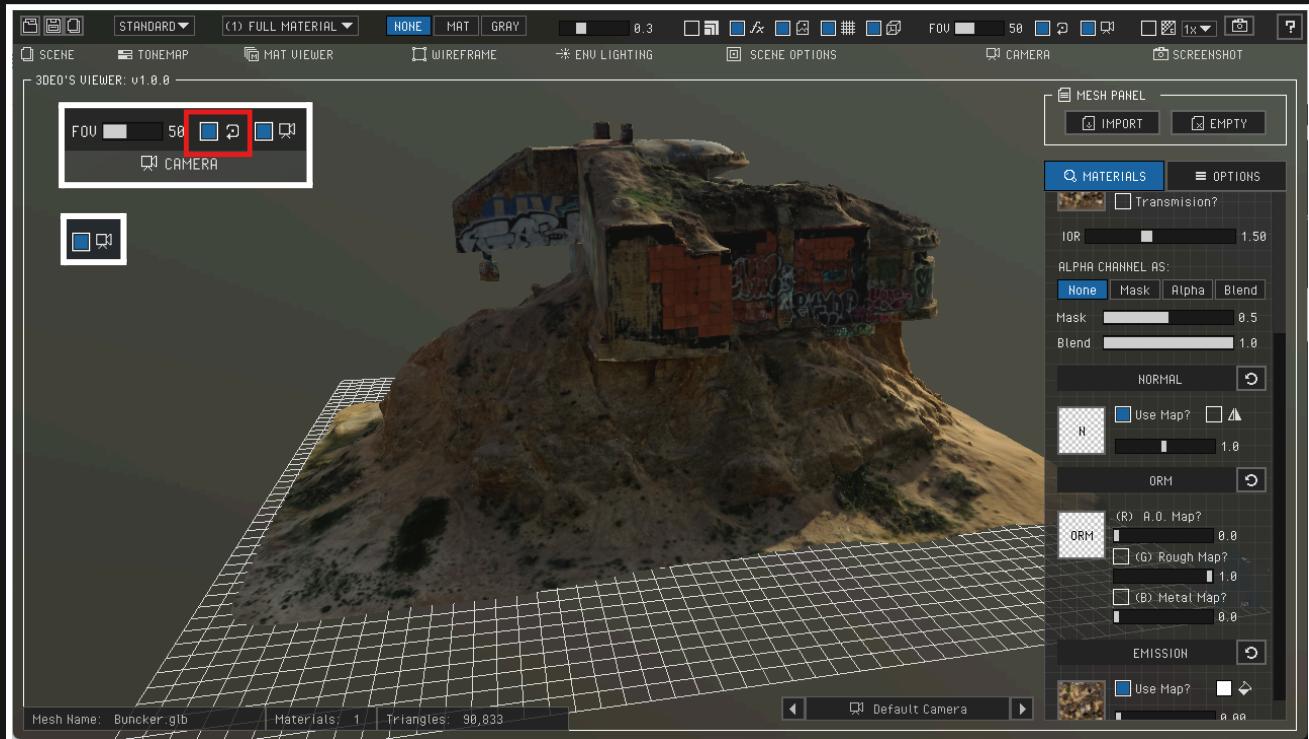
- **Static Camera Mode:** This will rotate around the static, centered mesh in the scene.
- **Walk Camera Mode:** This will rotate continuously around the fixed point.

Shortcut: O key

[Devil's Slide Bunker Model from Azad Balabanian]



[Static Camera > Orbit Off]



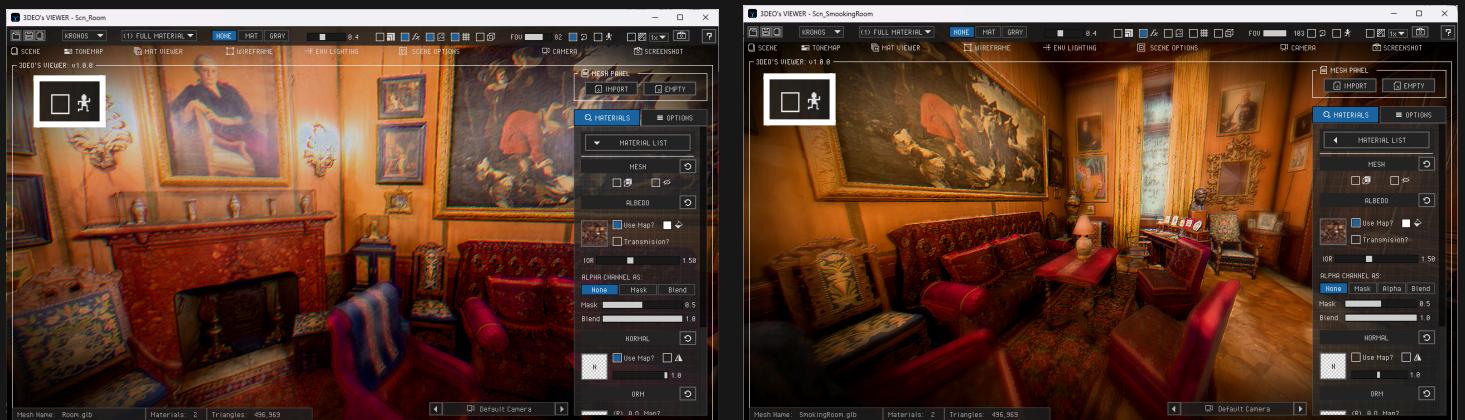
[Static Camera > Orbit On]

5.7.3 Camera >> Mode: Toggle between the Static and Walk mode:

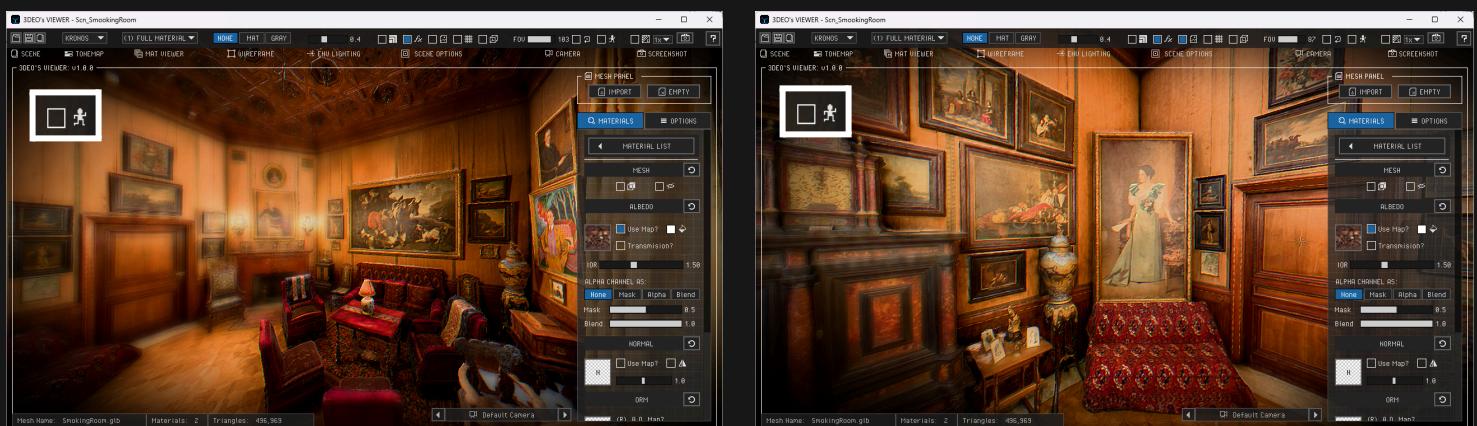
- **Static:** The camera movements are relative to the centered mesh in the scene.
 - **Rotate Model:** Drag using the **LMB**. The rotation includes a slight acceleration, depending on the dragging speed.
 - **Scroll Camera up/down:** Drag upward or downward using **LMB**.
 - **Zoom:** Use **SWB** (up/down) to zoom in/out, speed will be adjusted progressively based on mesh size and proximity.
 - **Panning:** Press and hold the **SWB** then drag up or down to pan the camera.

- **Walk:** You will be able to walk freely around the scene.
 - **Look at Model:** Using the mouse drag using LMB to look around or instead use the Keyboard using Left,Right,Up,Down Arrows.
 - **Move and Walk:** Hold and press '**WASD keys**' to move in any direction; Holding '**Shift Key**' will speed up the movements.
 - **Camera Height:** Hold and press the MMB this will allow you to control the camera's height.

Shortcut: C key



[Walk Mode: Using WASD + Draggin LMB or Arrow keys]



The Camera System Panel is located at: **RIGHT PANEL > OPTIONS > CAMERAS**

5.7.4 Camera >> Animations: This Panel allows you to create multiple sets of Cameras in the scene, useful for multiple Characters / Props views, but is better or Environment; because let you change between cameras and when you change to another camera the Camera System will make transition between the selected camera using its own parameters like: Position, Rotation, FOV, etc.

- **Static Mode (Mesh) / Walk Mode (Scene):** Toggles between Static and Walk Camera mode.
- **FOV:** Control the Field of View of the current camera in the scene, ranging from 1 to 120 mm.
- **Camera Name:** Allows you to use a Name for the camera to create pressing the
- **Camera List:** Shows all the cameras in the scene, also click on another one and change it.
- : Allows you to overwrite the Name, Pos, Rot or Fov in your camera selected.
- : Allows you to delete the selected camera from the camera list selected.
- : Allows you to show/hide the Camera Panel Camera 4 in the 3D Viewer.

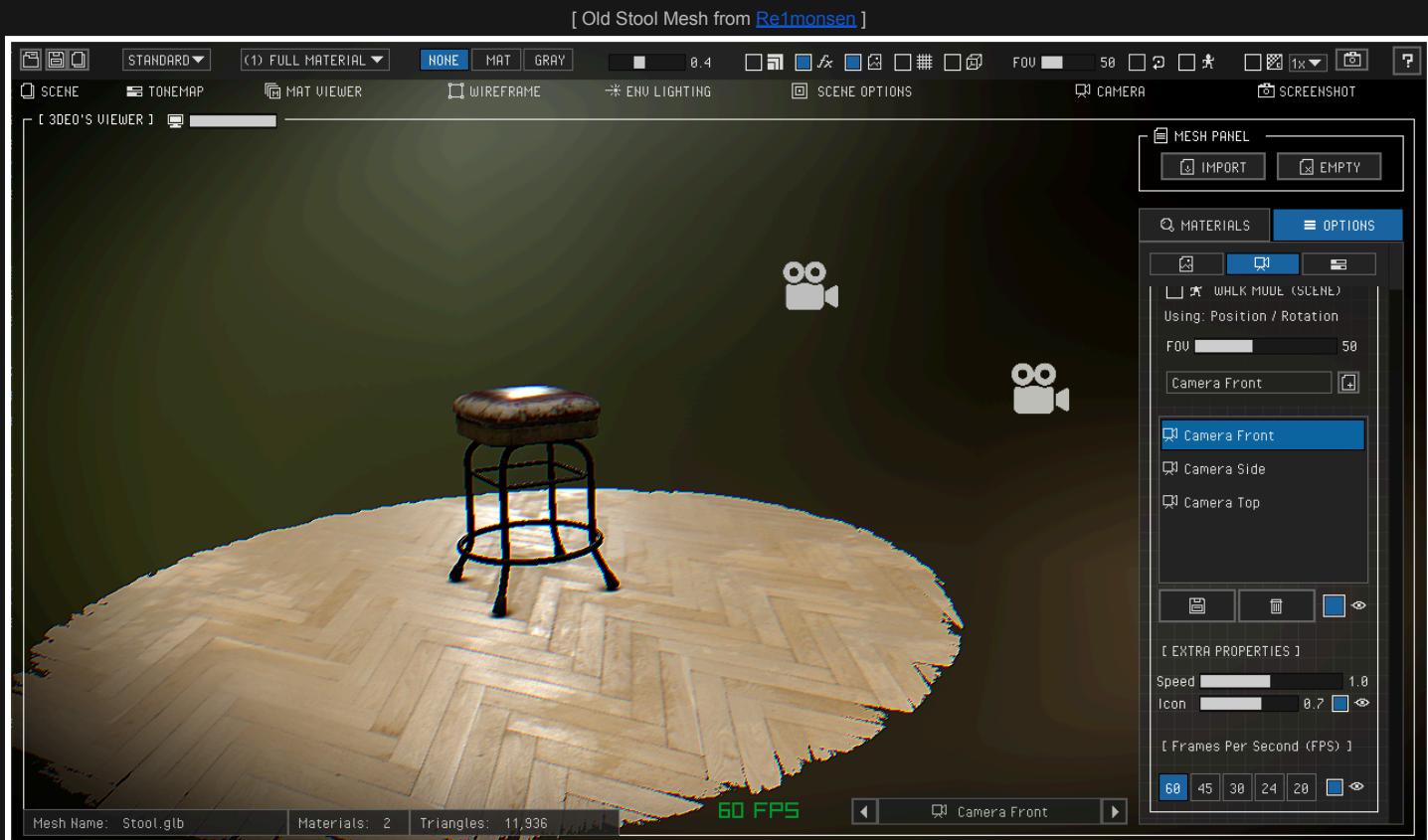


[EXTRA PROPERTIES]

- **Speed:** The speed animation to make transition between the cameras.
- **Icon:** This controls the visual icon size from the camera created in the scene.
- : Allows you to show/hide the camera icon from which it was created in the world position.

[FRAMES PER SECOND]

- : Allows you to run the animation in different frames per seconds, this impacts the complete application.
- : Allows you to show/hide the FPS indicator in the 3D Viewer.



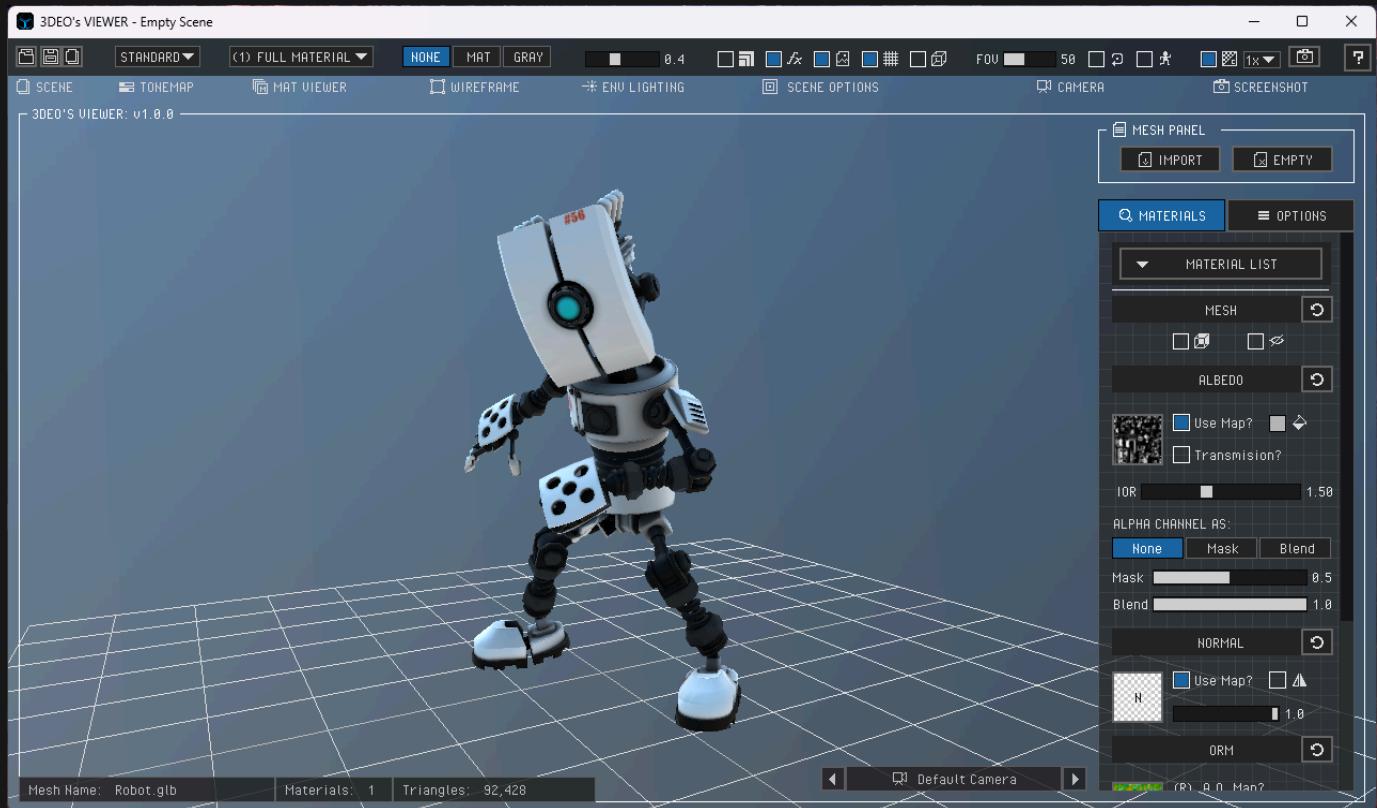
5.8 SCREENSHOT: The way to take screenshots from the whole visor.

- **Transparent:** Toggles between capturing a screenshot with or without the sky, making the background transparent.
- **Size:** This will increase the screenshot capture to the current size, double (2x), or even quadruple (4x) the original size.
- **Camera Button:** This executes the action to take a screenshot and saves it at 'ApplicationPath/screenshots/'.

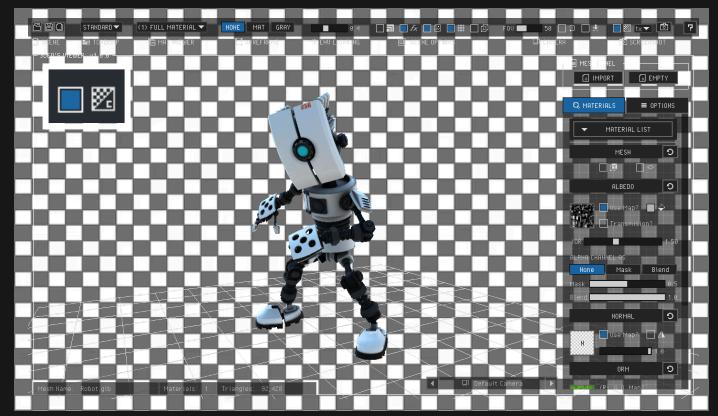
Shortcuts: Hide UI (Tab Key), Take Screenshot (F10 key), Record Gif animation (F11 key).



[Cyberpunk Robot Mesh from [SHE18226906_NC](#)]



[Screenshot with the Env Sky]



[Screenshot with the Env Sky / Color Transparent]