

## Augmented Reality Renderings

### *Moving Models from SketchUp to SketchFab*

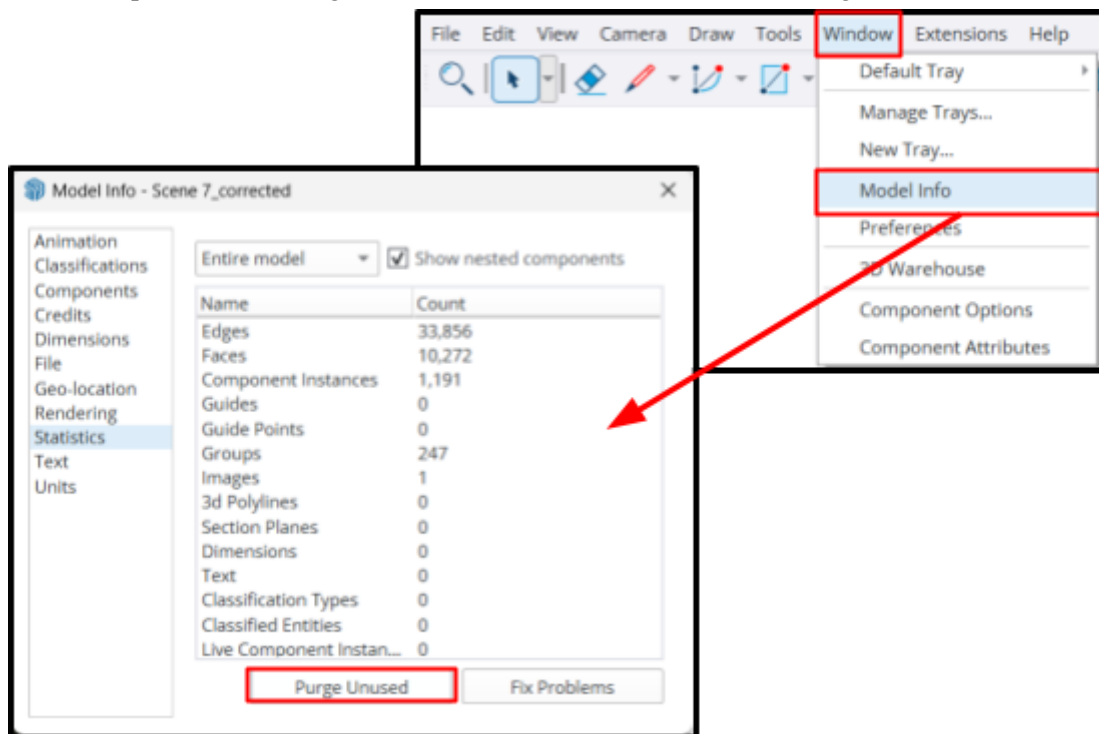
#### About the Process

SketchUp is the primary software used by many architects and designers working to create 3D renderings of objects, buildings, and more. Although not owned by the same company, SketchFab is an online software that transitions these 3D models into AR or VR models. In order to properly move a model from SketchUp to SketchFab, there are a few basic steps you need to do in both programs to ensure success. There is a “SketchUp to SketchFab” plugin that you can download on SketchUp, but I have had limited success with that for larger scale projects.

#### Adjustments in SketchUp

Tips when creating the model

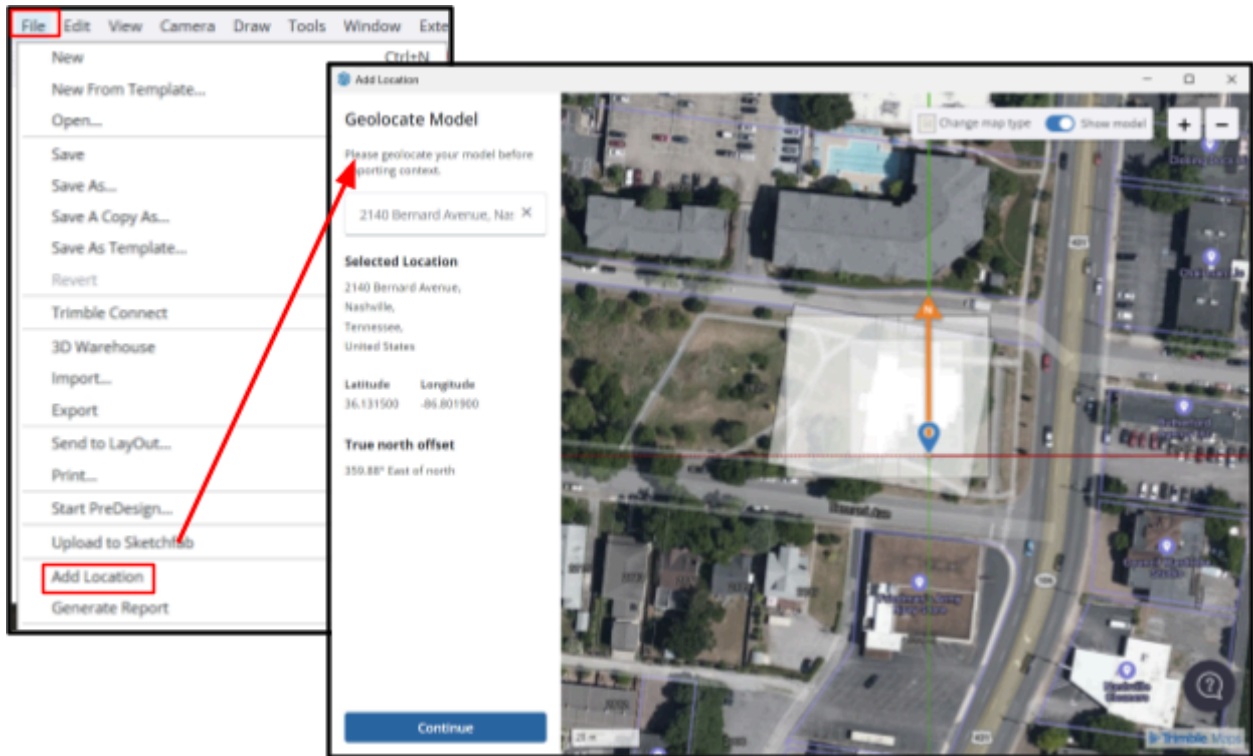
- ❖ Here is an [article](#) from SketchFab that tackles this problem.
- ❖ The most important part of this process is purging unused faces and materials. In the SketchUp2024 software, go to “Windows” then “Statistics” and “Purge Unused.”



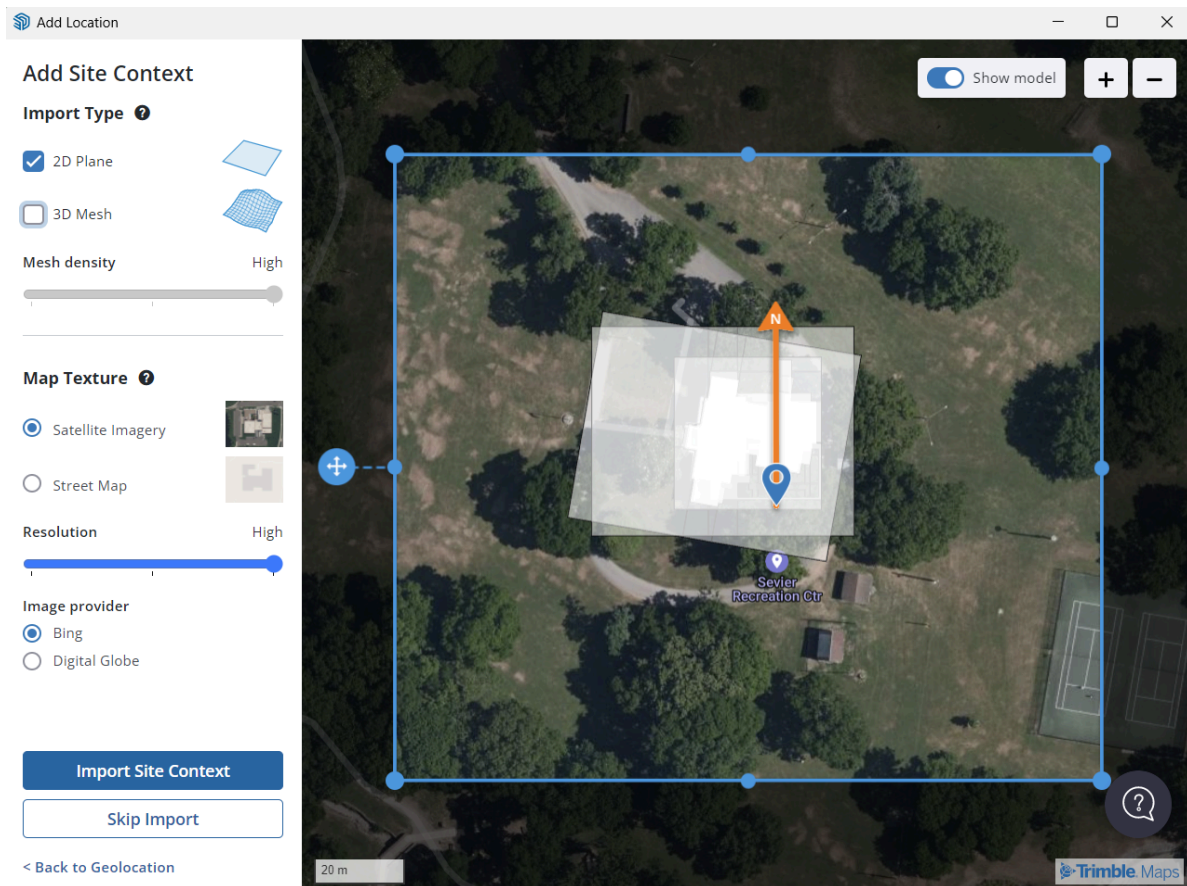
- ❖ Try to keep faces facing outward on the model, as mentioned in the article.
- ❖ The more complex the model is, the longer it will take to process in SketchFab, and the more likely for errors to occur in the AR model. Thus, it's helpful to keep the model relatively simple.

## Inputting LiDAR Imagery

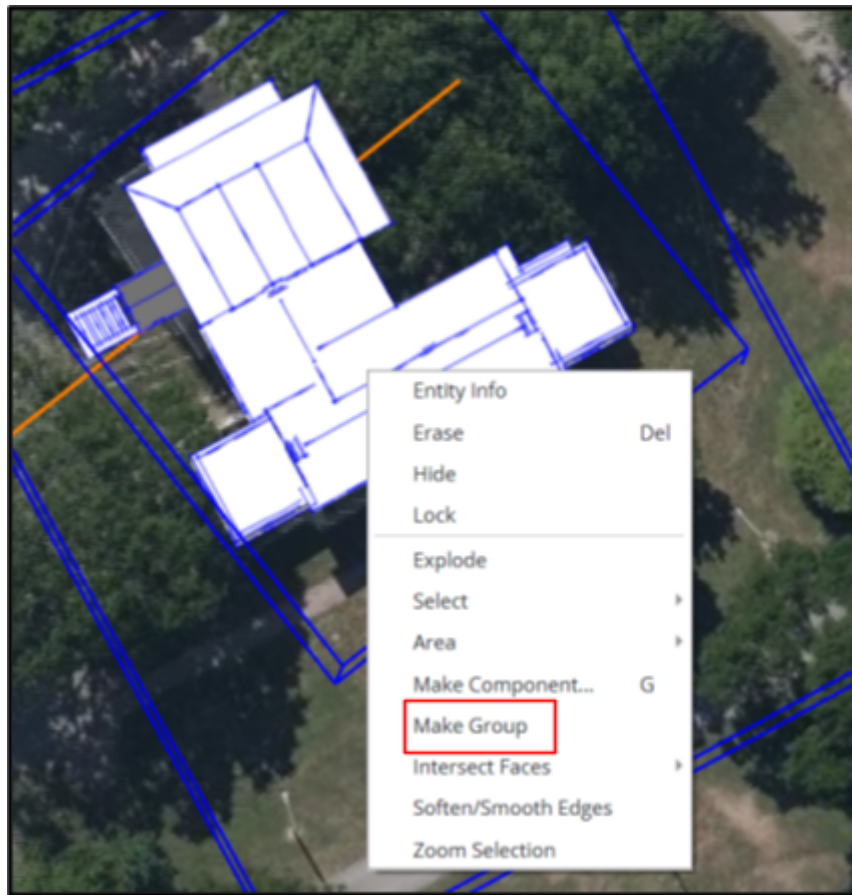
- ❖ To input LiDAR imagery, you need to geolocate the model.
- ❖ Go to File → Add Location, and a pop-up screen will appear with a geolocation model.



- ❖ You can input the address of your location and then adjust your model accordingly. Choose one aspect of the model to align with the desired location
  - Move the model using the blue location pin.
  - It is not important to get the model in the exact location you want it to be in.
  - You will move the model to align perfectly once you have imported the location into the main SketchUp screen.
- ❖ Click “Continue” when you are pleased with the area.



- ❖ Widen your desired area with the blue box, and check the box for “2D Plane.”
  - A 3D plane confuses SketchFab and causes problems when importing, in my experience
- ❖ Choose your desired map texture and image provider—you can use Satellite Imagery (I recommend Bing Imagery) or a Street Map, depending on the level of information you wish to have.
- ❖ Click “Import Site Context” when you are happy with your chosen area.
- ❖ Once you have imported the map, it is time to move your model to the desired location.
  - Hide any external flooring first that is not related to the model’s integrity.
- ❖ First, you need to make sure you have grouped all elements of your model together. Using the select tool, select all contents of your model, right click, then click “Make Group”
  - Side note: if you need to ungroup elements to adjust the group, you right click on the model and choose “Explode”



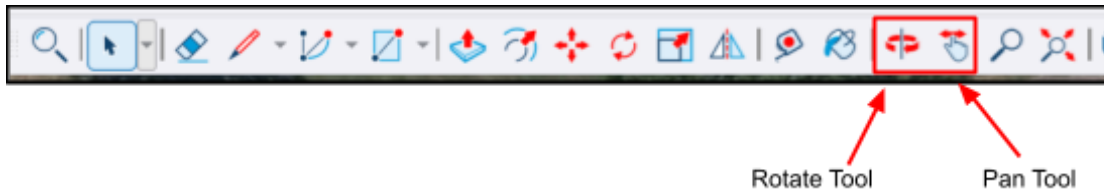
- ❖ Now, you need to align the model where you would like it to be located geographically.
- ❖ Select the model and use the movement tools to position it in the location you desire.



Move Tool

Rotate Tool

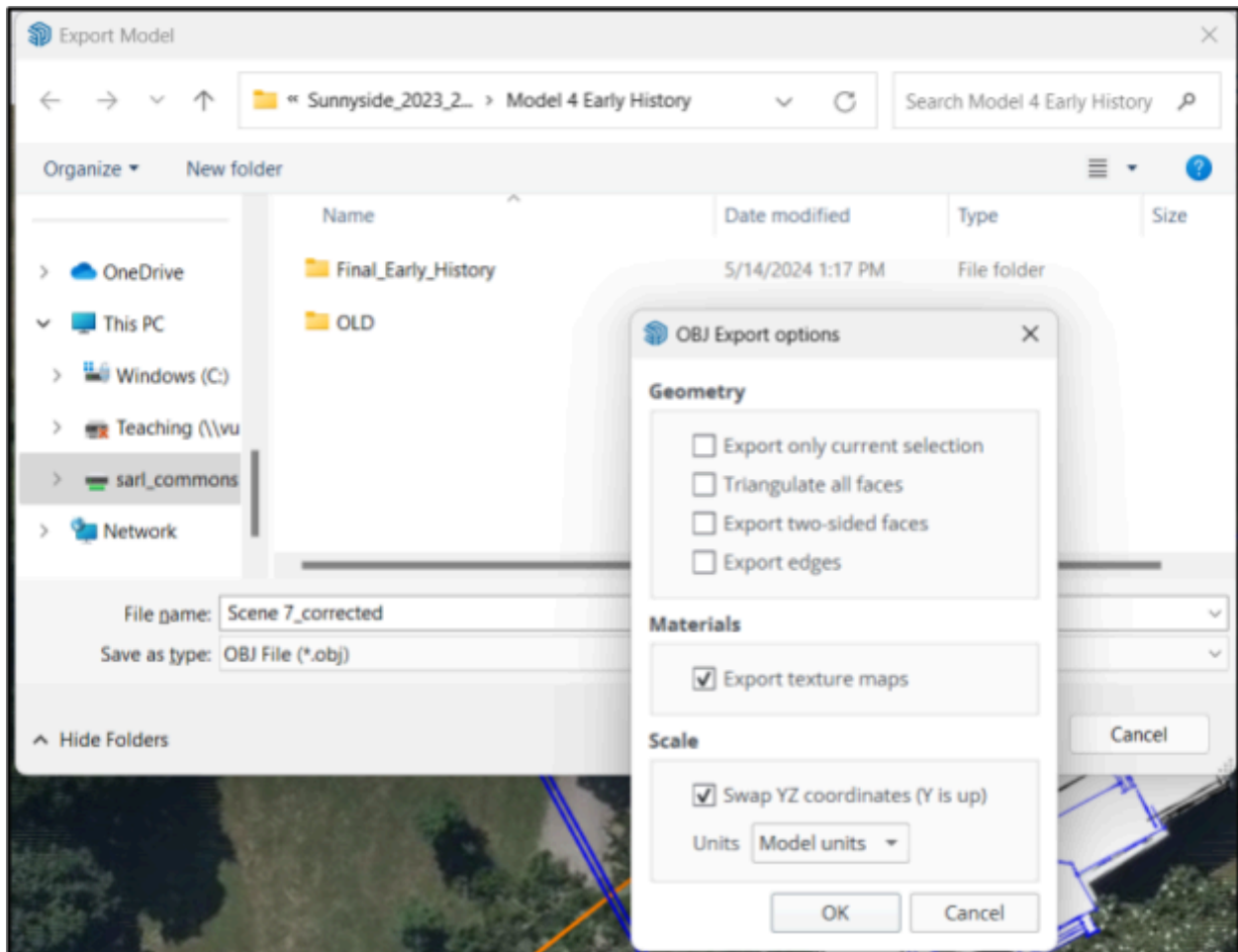
- ❖ Once positioned, return to the selection tool and select both the model and the LiDAR imagery and group them together following the same instruction as before.
  - You will first have to unlock the LiDAR imagery by right clicking and selecting “Unlock.”
  - To select both the model and the imagery, select one and then hold “CTRL” on your keyboard before selecting the second one, then right click.
- ❖ Set your camera into the desired location for the viewer to view the model from using the following camera tools:







❖ The model will import based on this location.

## Preparing for Export

1. Go to File → Export → 3D Model
2. Choose the desired location to save the model in.
3. You will be saving as a .obj
4. Click on “Options...” and set the parameters as follows:
  - a. Check “Export texture maps” and “Swap YX coordinates”
  - b. Click “OK”
5. Save the model.



- Go to your file explorer and locate where the model was saved. You will have a .obj file, a .mtl file, and a folder with the LiDAR imagery. Move the .obj file and .mtl file into the folder with the LiDAR imagery.

 Final_Early_History.mtl	5/14/2024 1:14 PM	MTL File	2 KB
 Final_Early_History.obj	5/14/2024 1:14 PM	OBJ File	552 KB
 Geolocation_api_v2_tile_bing_x_33936_y...	5/14/2024 1:14 PM	JPG File	382 KB
 Geolocation_api_v2_tile_bing_x_33937_y...	5/14/2024 1:14 PM	JPG File	332 KB

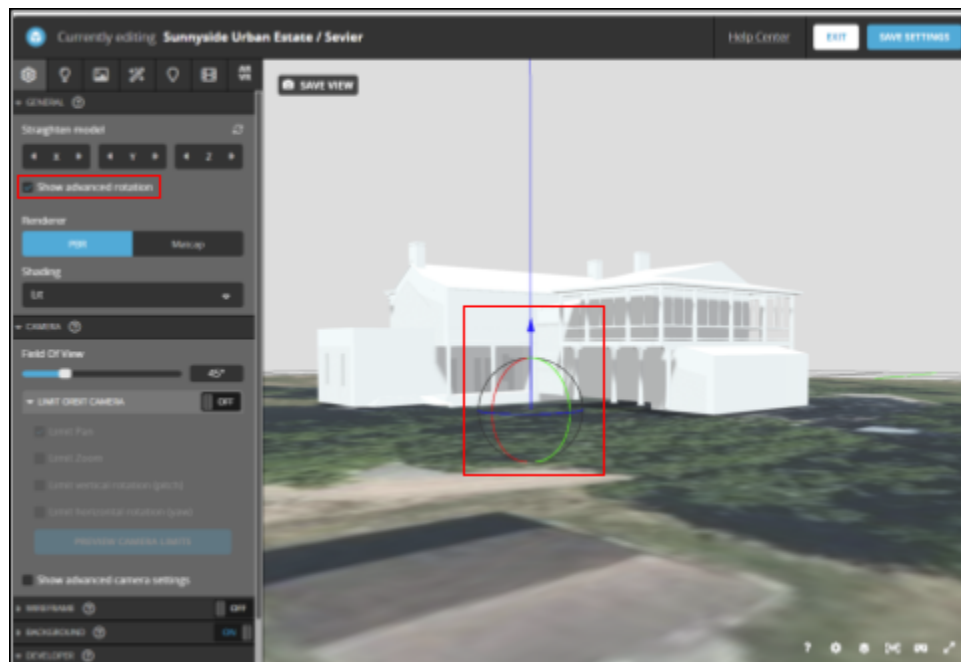
- Select all, and zip these files together. (right click and compress to zip)

## Moving to SketchFab

- In SketchFab, click “Upload,” and drag and drop the compressed file in.
- Click “Upload” again
- Give your model a title and description (if desired), then make sure that “Allow AR” is toggled on



- Click “Edit 3D Settings”
- Toggle on the “Show Advanced Rotation” setting, and a multi-colored sphere should appear.



6. If your model is not aligned where you want it to be, use the red, green and blue arrows to move it accordingly. The blue arrow will move the floor up or down closer to the model on the X plane, and the red and green lines will move it on the Y plane.
7. To move your vantage point, you can directly drag your perspective using the mouse. To pan around, right click and move. To zoom, use your scroller.
- 8. Make sure to click SAVE VIEW in the upper left-hand corner!**
9. Now that you have aligned yourself properly, move to the “AR/VR” tab.



10. You need to set the world scale according to your desired units (see table below)
  - a. Here is a [user-friendly article](#) about the scale.

Your Model Scale	Equivalent SketchFab World Scale
meters	1
centimeters	100
millimeters	1000
inches	39.37
yards	1.094



11. Once you have set that, click “Save Settings”
12. Your model should be ready to view!