

Use of External insta360 Camera for Stonex X120Go_v2 to Colorized the point cloud, create the panorama and 3D Gaussian splats.



The X120Go_v2 scanner is compatible with video data captured by the Insta360 X4/X5 camera.

This integration enables:

- Colorization of point clouds using spherical images from the Insta360 (as an alternative to the internal cameras)
- Generation of 360° panoramic images that can be measured and explored using GOpot software to use the Insta360 X4 with the scanner:

1. Attach the panoramic camera holder to the rear of the scanner, aligning it with the four mounting holes on the frame.

2. Mount the Insta360 camera on top of the holder and secure it using the appropriate screw.

Important: Make sure to position the camera so that the video screen faces the same direction as the scanner's USB ports.

Set the camera's video recording settings as follows:

- Mode: Timeshift
- Resolution: 5.7K
- Frame Rate: 30 fps
- Speed: 10×



At this point, you can begin operating the panoramic camera. First, turn on the Insta360 X4 camera, then immediately turn on the X120Go_v2 scanner.

At this point, connect the tablet to the scanner.

1. Start video recording on the Insta360 X4 camera.
2. Then, start the scanner to begin the scanning session.

This ensures proper synchronization between the video and scan data for accurate colorization and spherical image generation in post-processing.

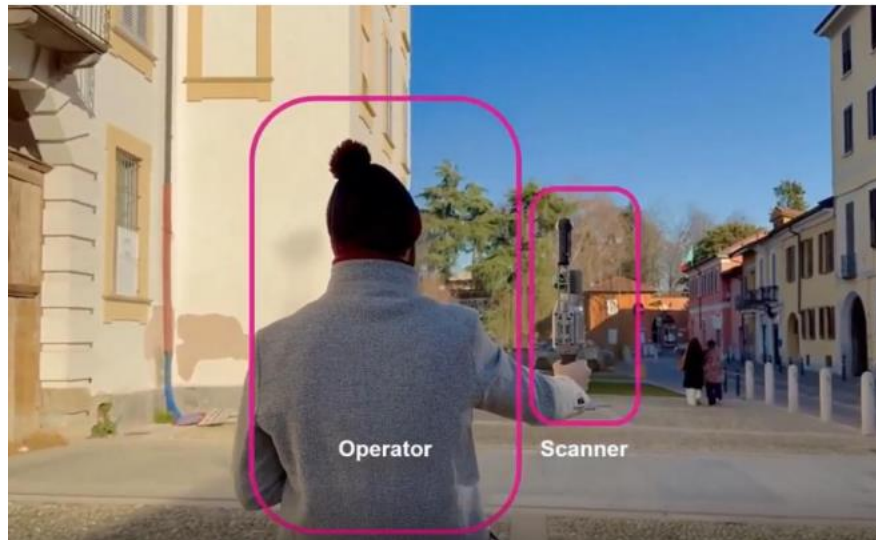
After the initialization period (approximately one minute), and before starting the main scan, perform the following steps to assist with camera calibration during post-processing:

1. Rotate the scanner and camera together from right to left, repeating the motion three times.
2. Walk some meters in a straight line.
3. Then, repeat the right-to-left rotation sequence once more.

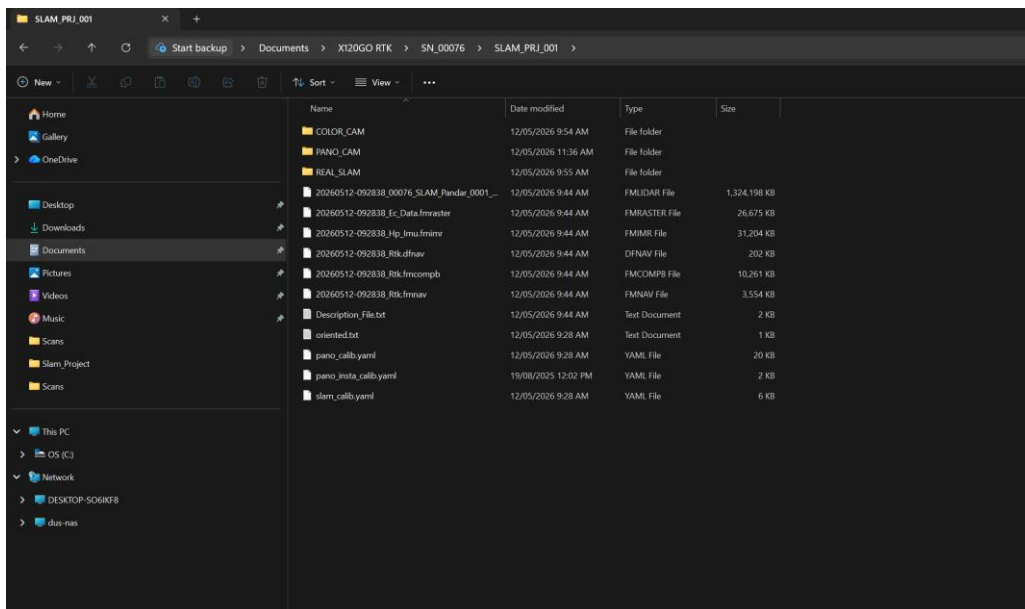


This procedure helps the post-processing software to accurately calibrate the panoramic camera's position relative to the scanner, improving overall alignment and colorization results.

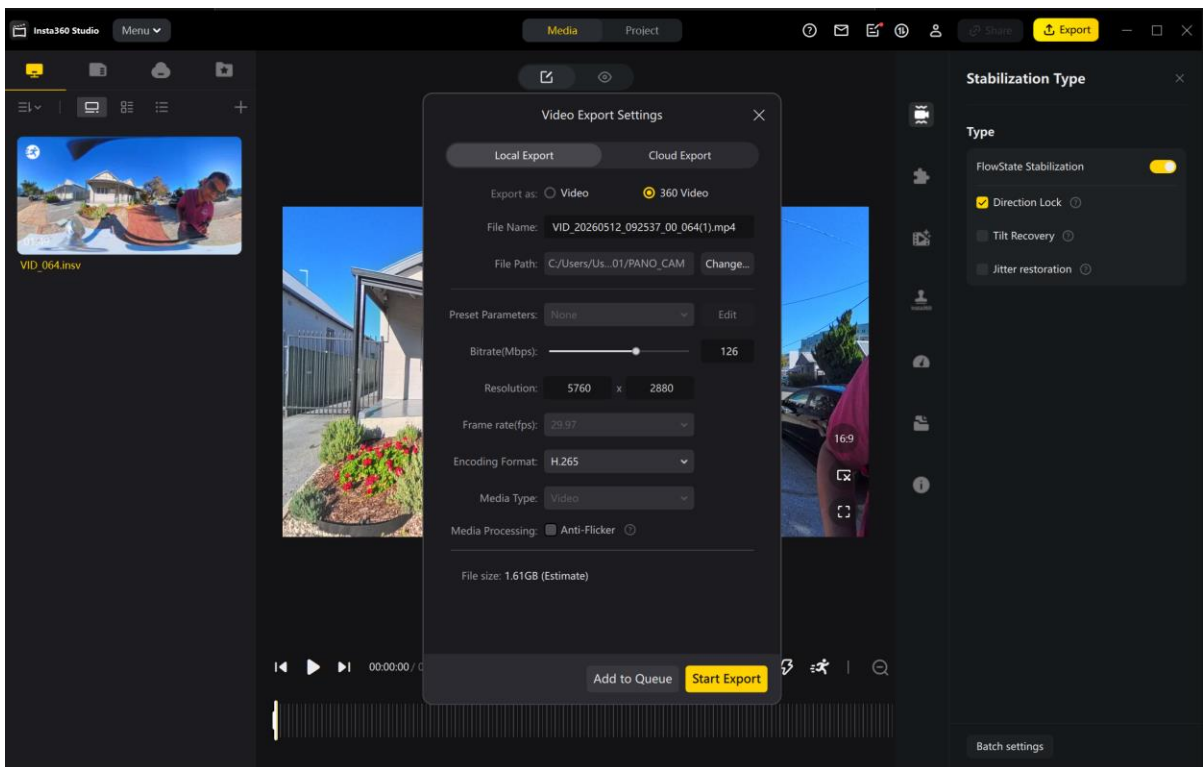
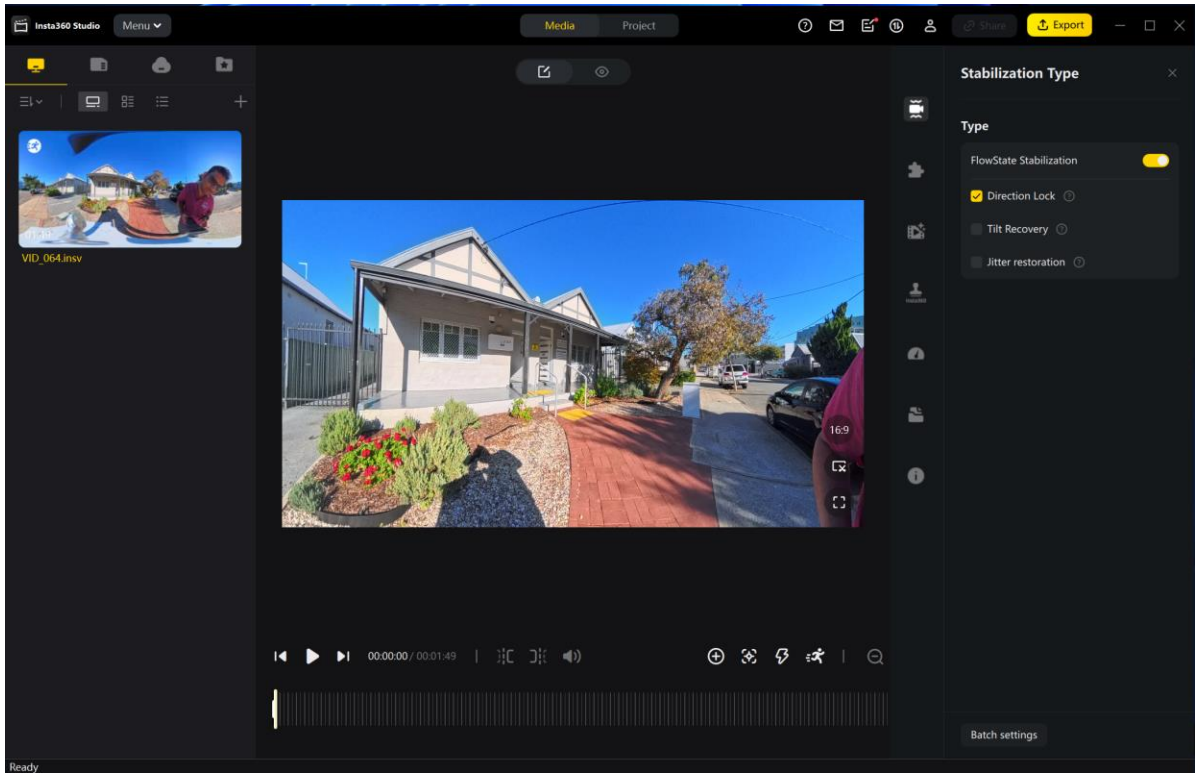
During the first minute of scanning, keep the scanner on your right side, ensuring that the operator is visible only in the left lens of the panoramic camera. After the first minute, you may switch sides if needed, but you must always remain visible in only one lens. This helps maintain a consistent image stitching and prevents calibration issues during post-processing.

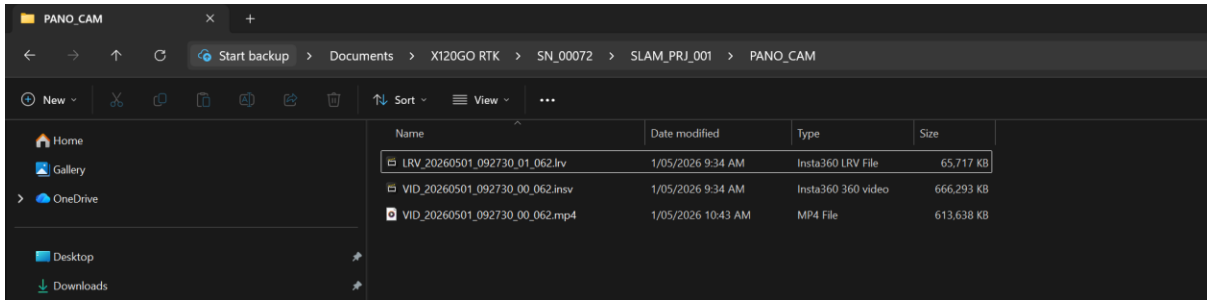


When the scan is complete, first stop the scanner, then stop the panoramic camera. After both devices are powered down, download the video data from the camera and the scanner to your computer.

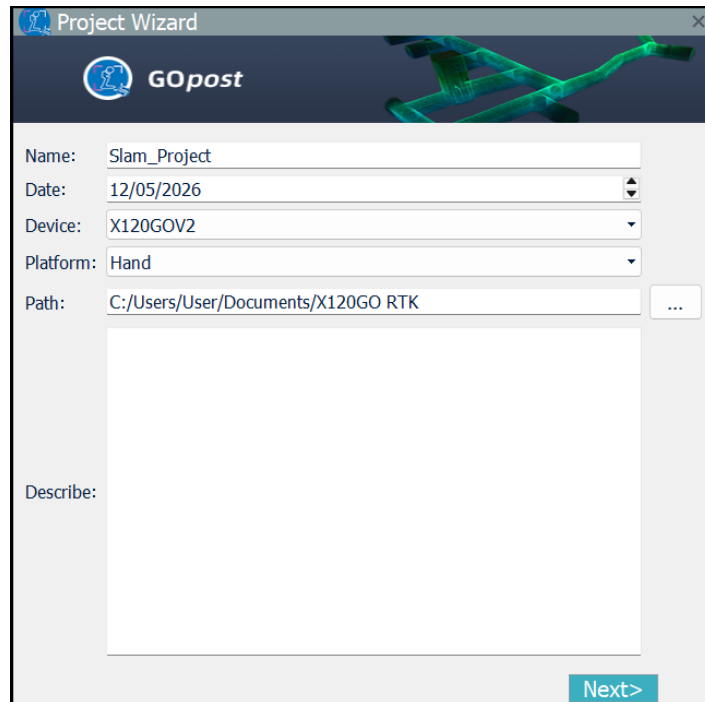


Inside output data folder from the X120Go_v2 scanner create a folder named in PANO_CAM to store the data of panoramic camera download the .insv and .lrv data from the insta camera and copy them into this folder then open insta studio and drag and drop the files to load them open the stabilization type menu and check both the Flow State stabilization and the direction lock click on export and choose this settings to save your video inside the same folder.

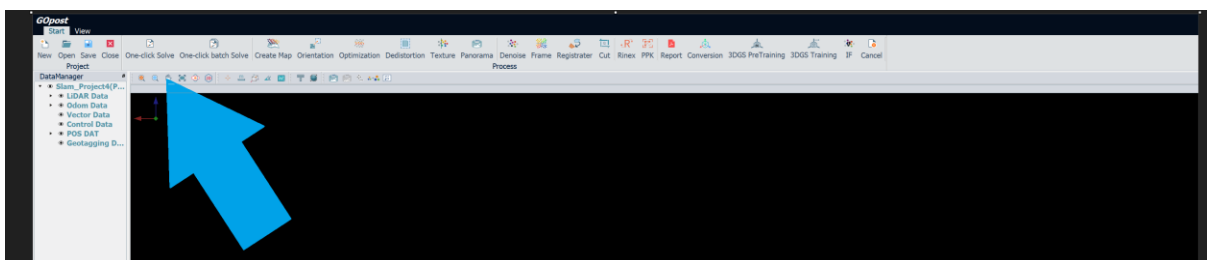


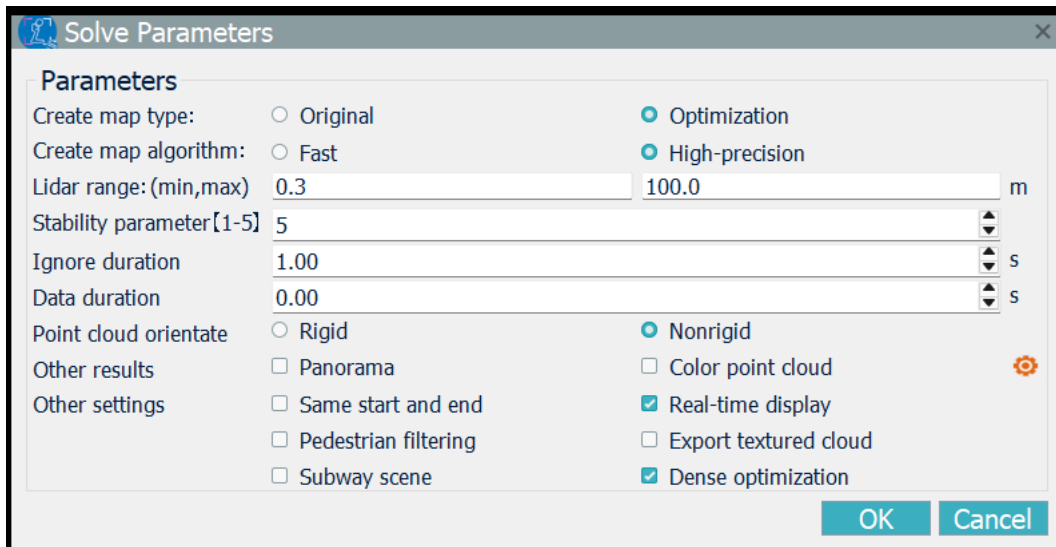


Open the Gopost software select following parameters for the X120Go_v2

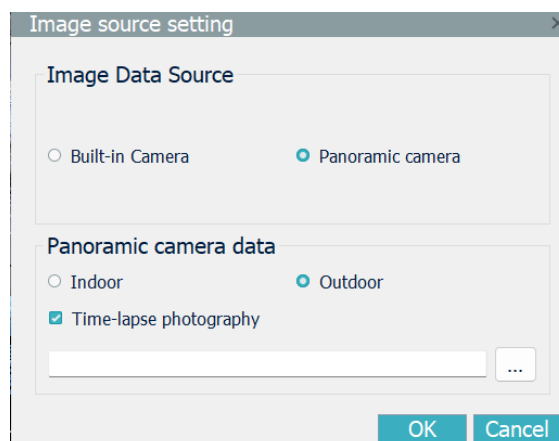


After loading the project then do the one-click Solve with these parameters





After the Raw data from the SLAM scanner finish the processing. Click the panorama icon to start creating the panorama from insta 360 camera data



Select panorama camera select either Indoor or outdoor tick the Time-lapse photography, click ... and select the PANO_CAM folder location for insta 360 data.

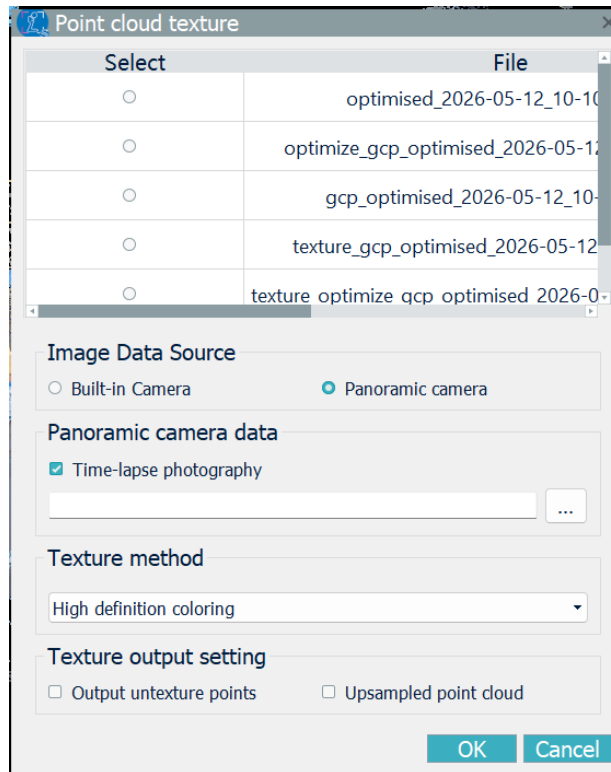
After panorama get stitched to the point cloud click Texture to color the point cloud using insta 360 camera data.

First select the point cloud that need to be colored, in this procedure it is optimize_gcp_optimised

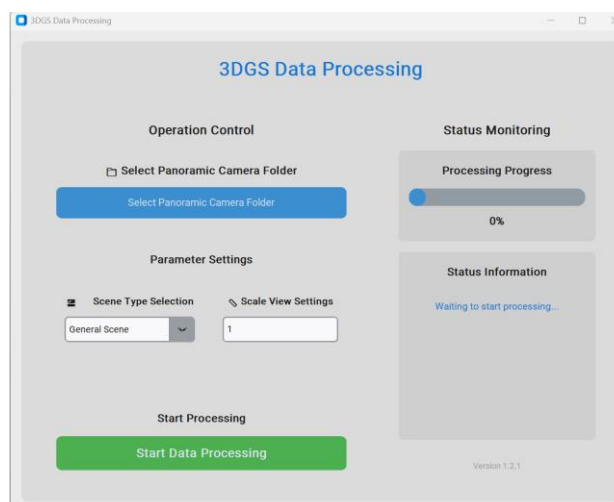
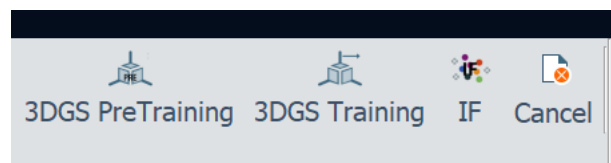
From the image data source select panoramic camera, under the panoramic camera data tick the Time-lapse photography. From ... select the PANO_CAM folder that contains the insta 360 data.

Select the Texture method from the drop down menu.

After that click ok.



To create the 3D Gaussian Splat first click the 3DGS Pre Training icon to align the insta 360 camera data with point cloud.



Select the PANO_CAM folder again and click on start data processing.

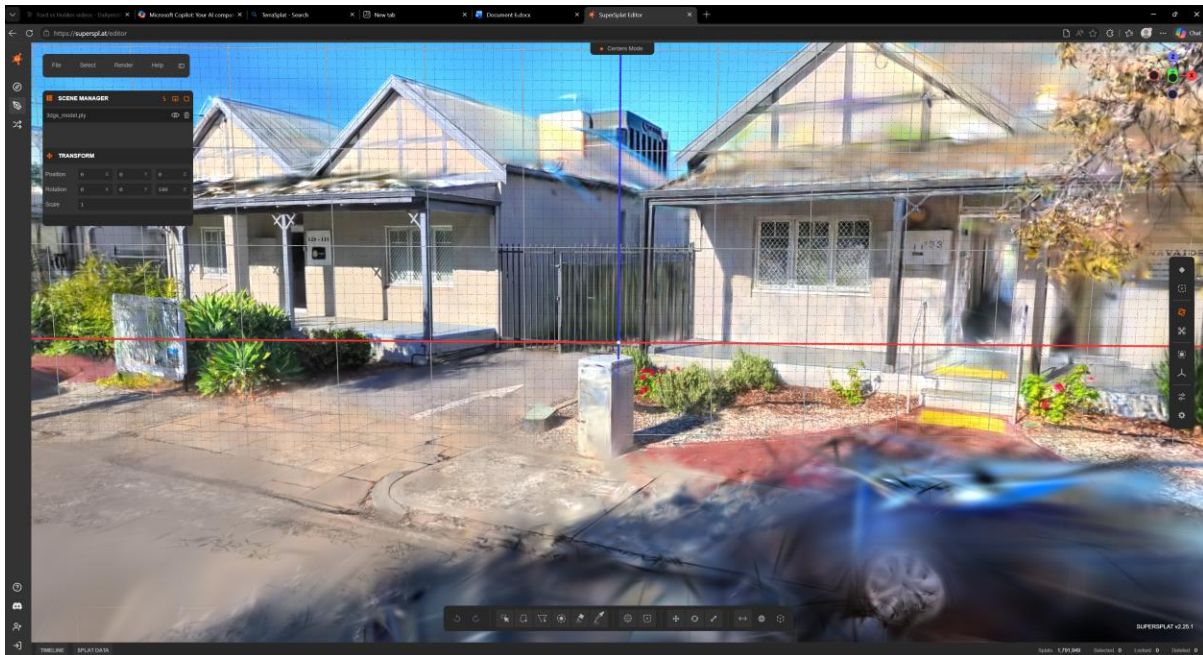
It will take some time depending on the size of the data set. After finishing this process gaussian splat can be created from the output training data set by clicking the 3DGS Training icon.

The final output gaussian splat is inside in the project folder under the given project name Slam_Project3DGS\3DGS\result folder in .ply format.

To view the gaussian splat and edit that, use Supersplat editor on following link:

<https://superspl.at/editor>

You can drag and drop the 3D Gaussian Splat file from the results folder directly to that



From here we can crop, edit taking measurements and export the edited 3D Gaussian splat

