

SHARE 3DGS Scanning Guide

1. Basic Preparation

- Clean the lens: **Ensure the lens is free of dust, fingerprints, or smudges.**



Ensure the lens is free of dirt

- Recommended scan duration: Within 10 minutes **(future optimizations will support longer data processing). The longer the scan duration, the higher the demands on the processing device's graphics memory and system memory.**
- Shooting interval: **Set the shooting interval to 0.5 seconds or less** to ensure data continuity.
- Initialization by Resting: Before shooting, place the device flat on the ground and wait for initialization to complete.
- Key objects should be photographed large and in full:
 - Move close to the subject so it fills the frame for clearer details.
 - Scan around it, capturing multiple angles.
- Blind spots cannot be reconstructed: 3DGS cannot reconstruct areas not captured in the scan. To reconstruct an object, it must be captured from at least two different positions.
- Stable Scanning: Hold the device firmly during scanning and move it steadily at a consistent speed. **Avoid twisting, swinging, or shaking the device.**

2. Collection Method

- Hold the device steady during scanning to minimize the proportion of the operator appearing in the photo.



Reduce the proportion of collection personnel

- Avoid having personnel follow closely for extended periods whenever possible.

3. Lighting

Maintain consistent lighting to avoid sudden changes in brightness.

- Outdoor recommendations: **Midday during cloudy or overcast conditions** is preferable.
 - Avoid direct sunlight (which causes overexposure, highlights, or heavy shadows).
 - Moving highlights and shifting shadows may affect reconstruction quality.
- Indoor Recommendations:
 - Turn on lights + open curtains to **ensure a stable light source**.
 - Switch on lights in advance to avoid sudden changes in brightness.

4. Movement Speed

- **Move slowly to avoid motion blur**; generally, it is recommended that movement speed does **not exceed 0.8 m/s**.
- The following scenarios require further slow movement, **not exceeding 0.5 m/s**:
 - Indoors or in dimly lit areas.
 - When turning, navigating corners, or changing direction.

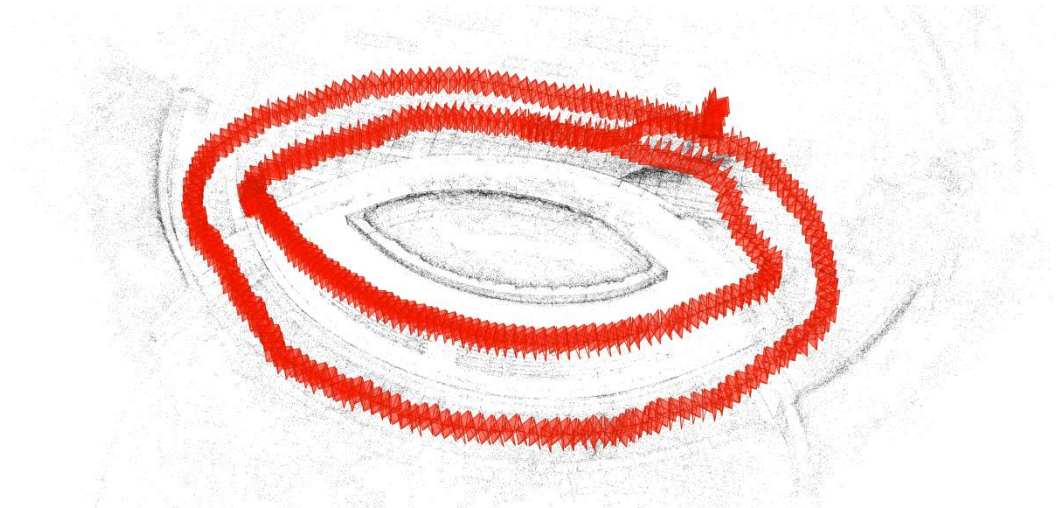
5. Try to shoot only static scenes.

- Moving objects may produce “ghosting” or hollows:
 - **Avoid photographing moving subjects whenever possible**, such as

pedestrians, moving vehicles, fluttering curtains, flickering screens, etc.

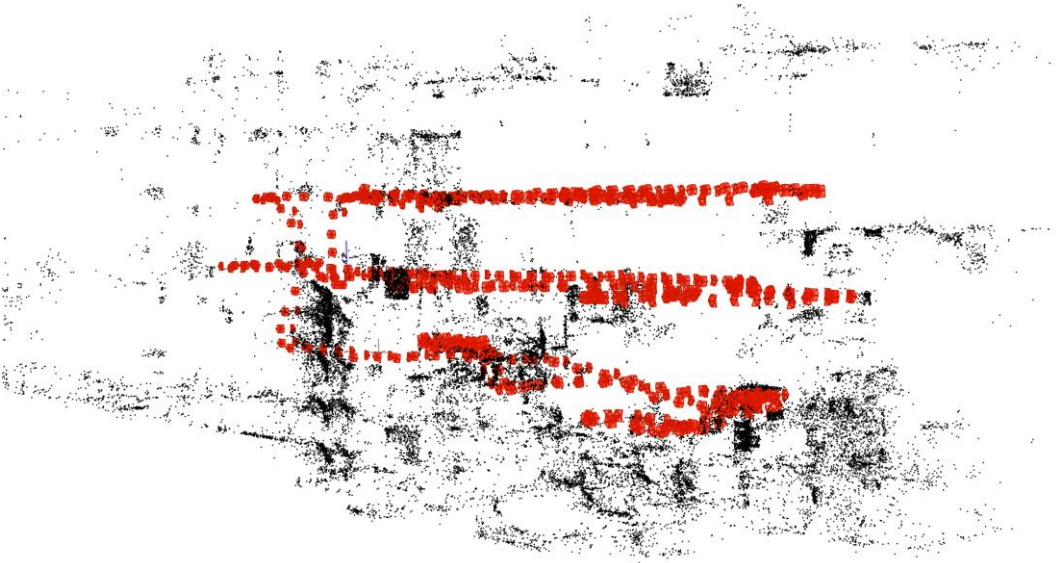
6. Shooting Path

- **Shooting from different angles:**
 - Capture 360° around your subject, ensuring adjacent photos overlap by more than half.



Circular shooting

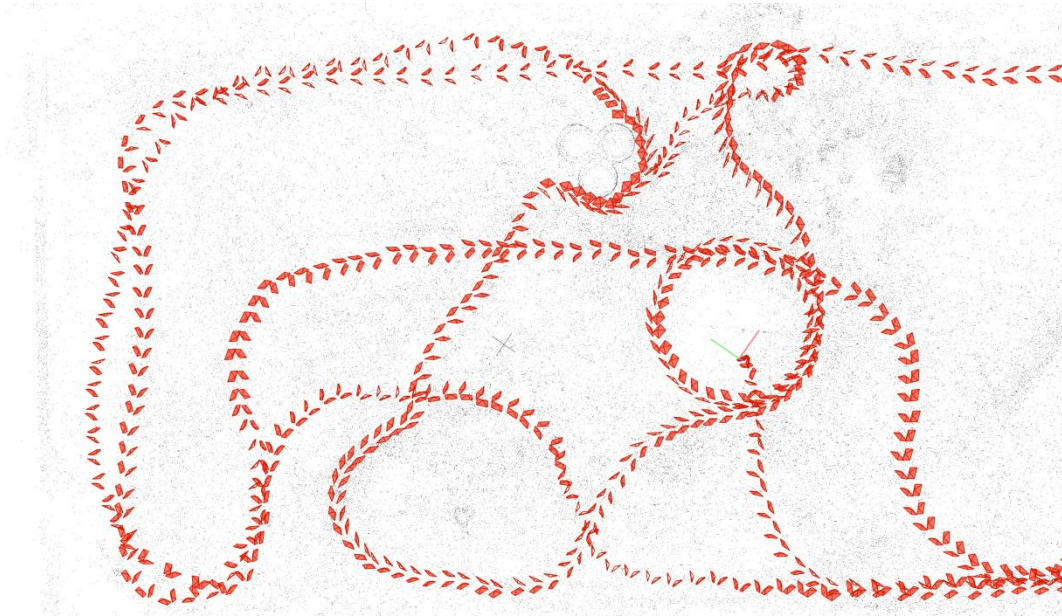
- **Shooting from different heights:**
 - Avoid blind spots by crouching to shoot objects from below and raising your camera to shoot from above.
 - Layer your shots: The more varied your shooting angles, the better the scene reconstruction quality (recommended approach: first circle the subject at one height, then circle at a different height).



Capture images at different heights (head level, chest level, leg level)

- **Shooting from different routes:**
 - Ensure overlap between different shooting routes to achieve a more complete

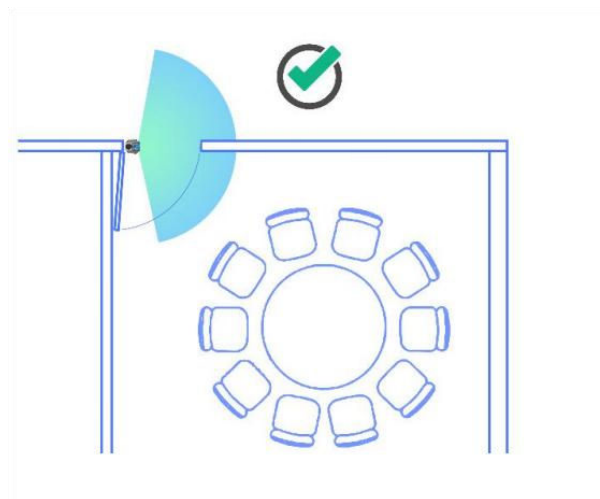
reconstruction.



There must be overlapping points between different shooting routes.

7. Methods for Handling Special Scenarios

- Narrow spaces (such as corridors, doorways)
 - Walk sideways, **ensuring one side of the camera always faces the direction of travel.**



Sideways through narrow passages

- Reflective/transparent objects (such as glass, mirrors, metal, water)
 - **Avoid, block, or remove such objects whenever possible:** they can easily cause “ghosting”, distortion, or hollow areas.
- Repeating textures or texture-free areas (white walls, solid-color areas)
 - These areas lack distinctive features, making it difficult for 3DGS to match the viewpoint.
 - Recommendation: **Shoot from a greater distance** to include both texture-free

areas and other objects with rich textures in the frame, or add temporary markers to aid reconstruction.

- Near dynamic elements (such as busy intersections, television screens, flashing lights)
 - For outdoor photography, choose times when there is **less foot traffic and vehicle flow**.
 - **The changing screen must be turned off or covered** to ensure the displayed content remains stable.
- High-contrast or extremely bright areas (such as backlit windows)
 - This may result in overexposure or underexposure in certain areas, leading to loss of geometric information.
 - For indoor shots, **draw the sheer curtains or use supplemental lighting**. For outdoor shots, choose **times with even lighting**.