A Gaussian Splatting Details

We initialize the 3DGS start points with points deprojected from DROID-SLAM disparity, deduplicated. To accomodate small amounts of SLAM drift, we enable camera optimization, similar to (Seiskari et al., 2024; Zhao et al., 2024), which refines poses during 3DGS training. To deal with the large scene scale in our captures, we need to modify a few important hyperparameters inside Splatfacto, which was primarily tuned for use with object-centric captures. We use the AbsGS splitting heuristic introduced by (Ye et al., 2024) with a gradient threshold of 0.0006 as well as lowered learning rate on the Adam optimizer controlling 3DGS means to $5e-5$ as recommended by the original implementation. We also extend the length of the culling/splitting portion of 3DGS training from 15000 to 25000 steps, and lower the densify size threshold to 0.1% from 1%, ensuring fine details are reconstructed.

B Hardware Specifications

The PAWS data collection system consists of three cameras, one on each shoulder, and a third camera pointed at the feet. The shoulder-mounted cameras are stereo ZedX Mini cameras, while the downward facing camera is a stereo Zed Mini. For depth estimation we opt for the provided neural depth model, which is slightly less accurate than RAFT-Stereo (Lipson et al., 2021) yet considerably faster. The three cameras are connected to a rigid plate attached to the chest, and their precise transforms are derived from the CAD model. All three cameras are connected to a NVIDIA Jetson AGX Orin Developer Kit which hardware encodes and saves the three camera streams for later processing.

C Rendering Performance Analysis

3D Gaussian Splatting models support fast batch rendering, capable of rendering thousands of frames per second at certain resolutions.

Resolution	FPS (RGB + Depth)
64×64	1487 ± 12
96×96	1023 ± 9
256×256	756 ± 9
512×512	431 ± 6
1024×1024	185 ± 3

Figure C.1: Rendering frames per second for various resolutions. Reported times are for computing both RGB and Depth values from the 3DGS.