

ENHANCING 3D GAUSSIAN SPLATTING IN EXTREMELY SPARSE-VIEW 360° SCENES WITH SAMPLED IMAGES FROM THE UPPER HEMISPHERE

1. Supplementary Materials

Our approach is evaluated on nine selected scenes across the two large-scale real-world datasets: Mip-NeRF 360 [1] and Tanks&Temples [3]. We use the 3DGS [2] splitting strategy to divide each scene into training and test sets. For training, we filter out images lacking centrally positioned objects, then select four diverse views that ensure complete 360° coverage and varied camera angles. The test sets are reserved for evaluation. Figure 1 and Figure 2 illustrate the selected training images and the camera distribution for both the training and test sets.

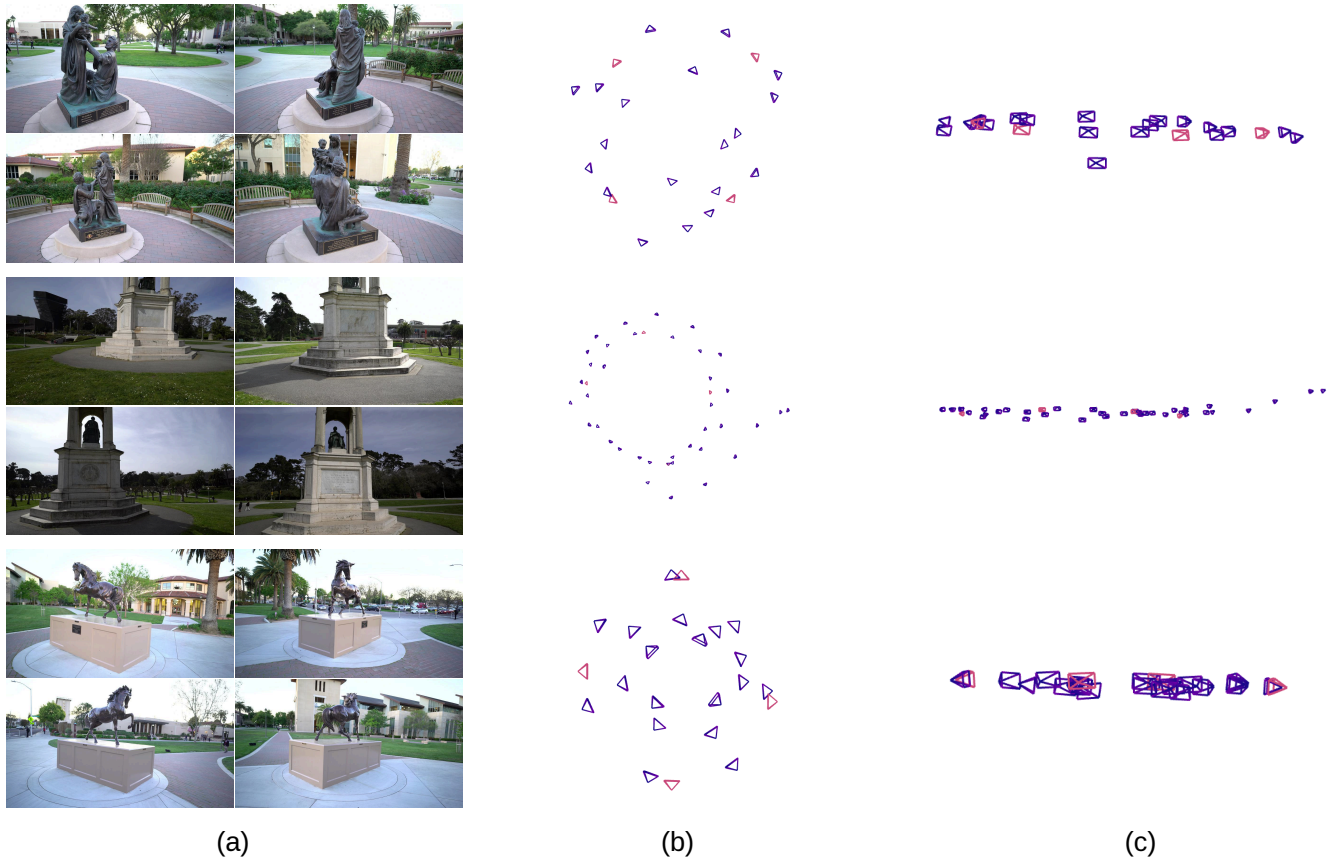


Fig. 1: Training images and camera distribution for selected scenes—Family, Francis, and Horse—from the Tanks&Temples dataset. (a) Training images; (b) top view of camera distribution with training cameras in red and test cameras in blue; (c) side view of camera distribution with training cameras in red and test cameras in blue.



Fig. 2: Training images and camera distribution for selected scenes—Kitchen, Garden, Bicycle, Bonsai, Stump, and Tree-hill—from the Mip-NeRF 360 dataset. (a) Training images; (b) top view of camera distribution with training cameras in red and test cameras in blue; (c) side view of camera distribution with training cameras in red and test cameras in blue.

2. References

- [1] J. T. Barron, B. Mildenhall, D. Verbin, P. P. Srinivasan, and P. Hedman. Mip-NeRF 360: Unbounded Anti-Aliased Neural Radiance Fields. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pages 5470–5479, 2022.
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- [3] A. Knapitsch, J. Park, Q.-Y. Zhou, and V. Koltun. Tanks and temples: benchmarking large-scale scene reconstruction. *ACM Transactions on Graphics (ToG)*, 36(4):1–13, 2017.