

Mitigating Ambiguities in 3D Classification with Gaussian Splatting

Supplementary Material

1. GS Point Cloud Dataset

Fig. 1 presents GS point clouds and their corresponding rendering results from our GS Point Cloud Dataset, showcasing real-world examples across various categories.

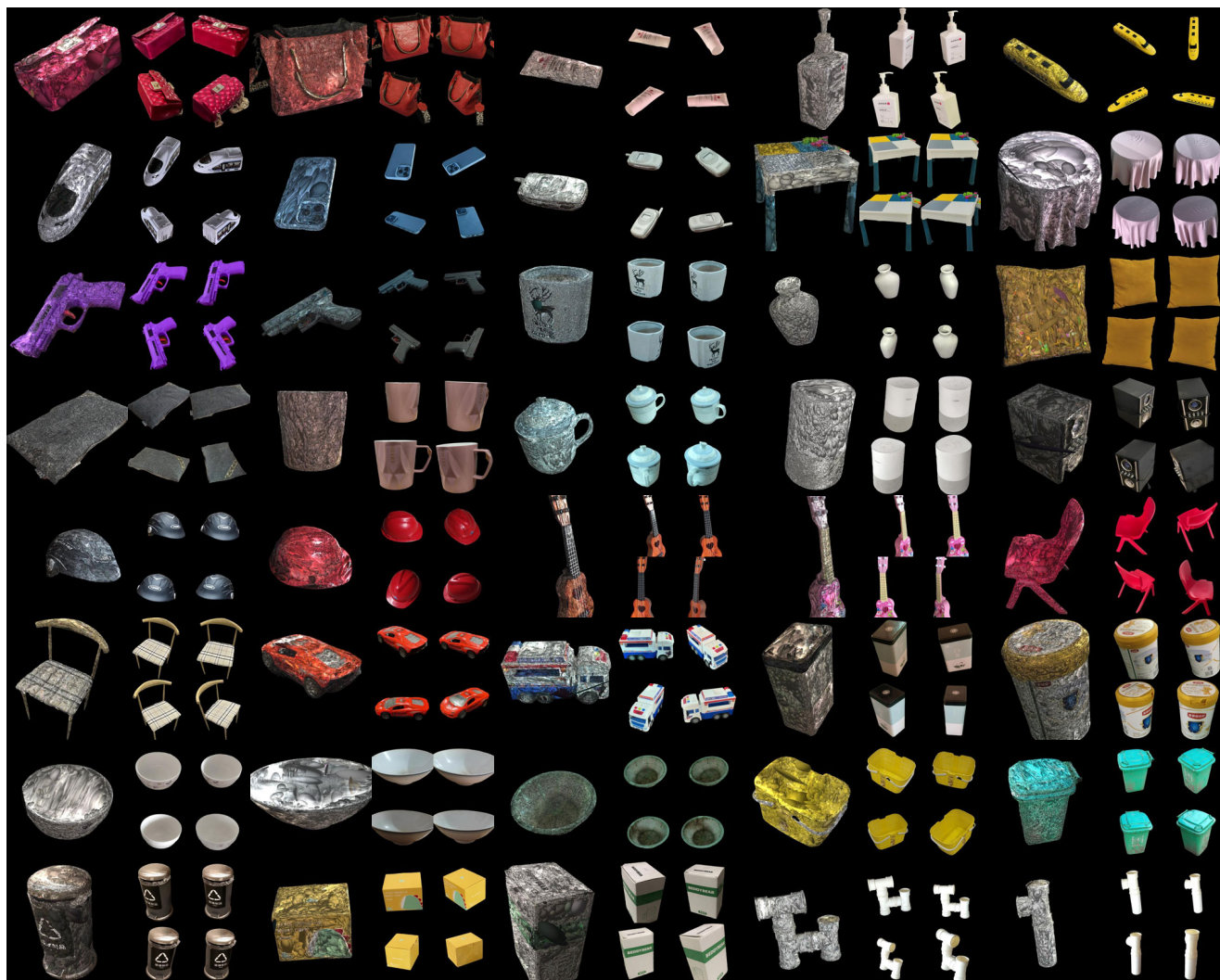


Figure 1. Visualization of GS point clouds and their corresponding rendering results from our GS Point Cloud Dataset.

2. Features Visualization

Figs. 2 to 4 provide additional t-SNE visualization results for PointNet++ [2], PointNeXt [3], and PointMLP [1].

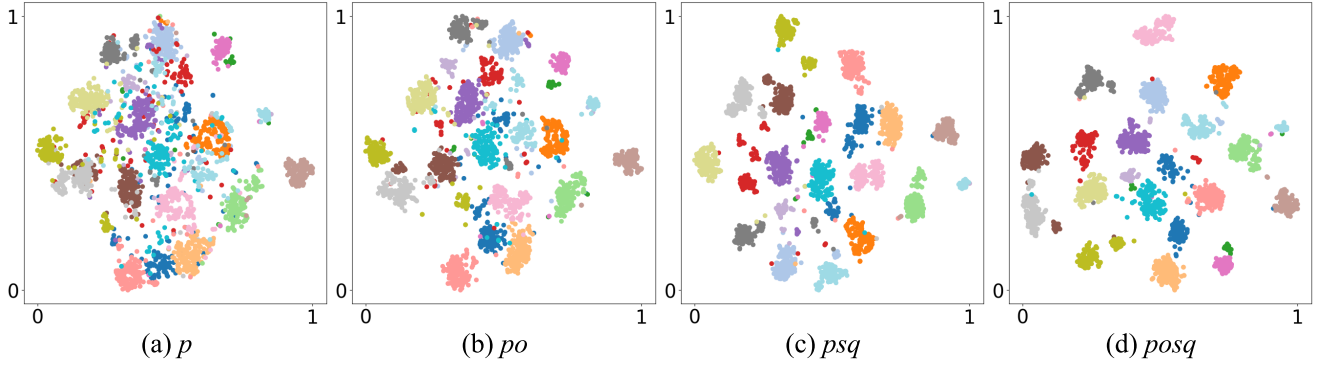


Figure 2. Visualizations of the global features in PointNet++ with different inputs using t-SNE technique. (a)-(d) are visualized features of network with only position, position+opacity, position+scale+rotation and position+opacity+scale+rotation inputs, respectively.

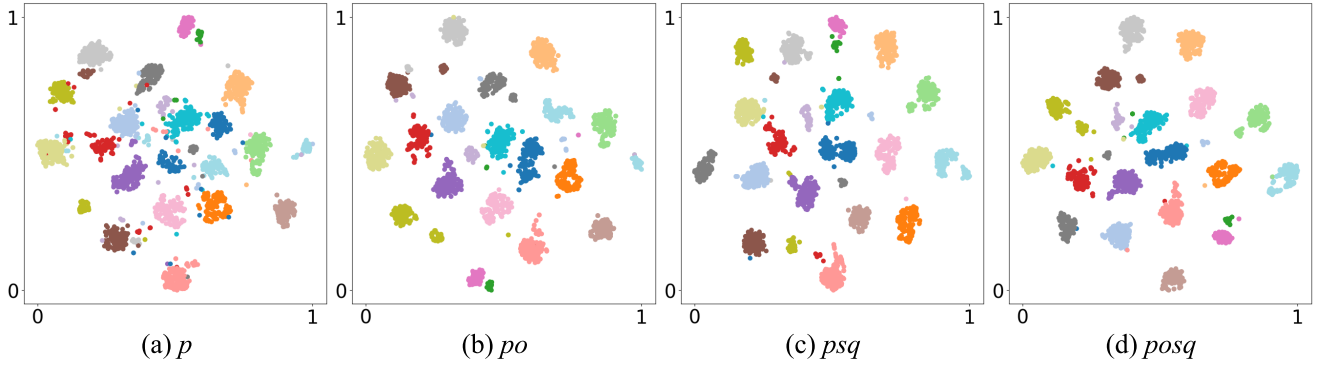


Figure 3. Visualizations of the global features in PointNeXt with different inputs using t-SNE technique. (a)-(d) are visualized features of network with only position, position+opacity, position+scale+rotation and position+opacity+scale+rotation inputs, respectively.

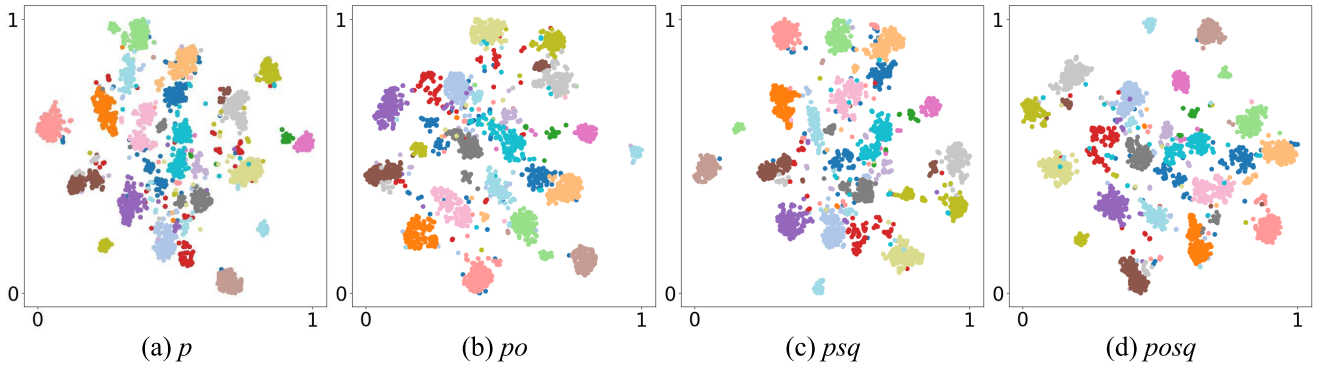


Figure 4. Visualizations of the global features in PointMLP with different inputs using t-SNE technique. (a)-(d) are visualized features of network with only position, position+opacity, position+scale+rotation and position+opacity+scale+rotation inputs, respectively.

References

- [1] Xu Ma, Can Qin, Haoxuan You, Haoxi Ran, and Yun Fu. Rethinking network design and local geometry in point cloud: A simple residual MLP framework. In *International Conference on Learning Representations*, 2022. [2](#)
- [2] Charles Ruizhongtai Qi, Li Yi, Hao Su, and Leonidas J Guibas. Pointnet++: Deep hierarchical feature learning on point sets in a metric space. *Advances in neural information processing systems*, 30, 2017. [2](#)
- [3] Guocheng Qian, Yuchen Li, Houwen Peng, Jinjie Mai, Hasan Hammoud, Mohamed Elhoseiny, and Bernard Ghanem. Pointnext: Revisiting pointnet++ with improved training and scaling strategies. In *Advances in Neural Information Processing Systems (NeurIPS)*, 2022. [2](#)