Recurrently Estimating Reflective Symmetry Planes from Partial Pointclouds

Supplementary Material

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Qualitative Results

In Figure 1, we show examples of symmetry planes estimated by our approach from both full and partial pointclouds from ShapeNet [1]. The first column shows the object models together with their corresponding ground truth symmetry planes (in green). Note that, for objects that have multiple reflective symmetries, we show all ground truth planes.

The following columns illustrate the planes estimated by our model in different scenarios. The second column shows the planes (in blue) output by the model when processing full pointclouds. The last two columns correspond to the planes estimated by the model when processing partial pointclouds: either observed from one lateral side or from a front (or back) view.

It is worthwhile noting that the pointclouds that our method can handle are missing significant parts. Our approach currently outputs a single symmetry plane per object. If the object has multiple valid symmetry planes, depending on the viewpoint used to rasterise the partial pointcloud, the predicted plane might differ. For example, as in the *bag* row, the estimated plane output for the side viewpoint is orthogonal to the plane predicted for the back view – in spite of this, both predictions are valid reflective symmetry planes.

References

[1] Angel X. Chang, Thomas Funkhouser, Leonidas Guibas, Pat Hanrahan, Qixing Huang, Zimo Li, Silvio Savarese, Manolis Savva, Shuran Song, Hao Su, Jianxiong Xiao, Li Yi, and Fisher Yu. ShapeNet: An Information-Rich 3D Model Repository. Technical Report arXiv:1512.03012, Stanford University — Princeton University — Toyota Technological Institute at Chicago, 2015. 1, 2

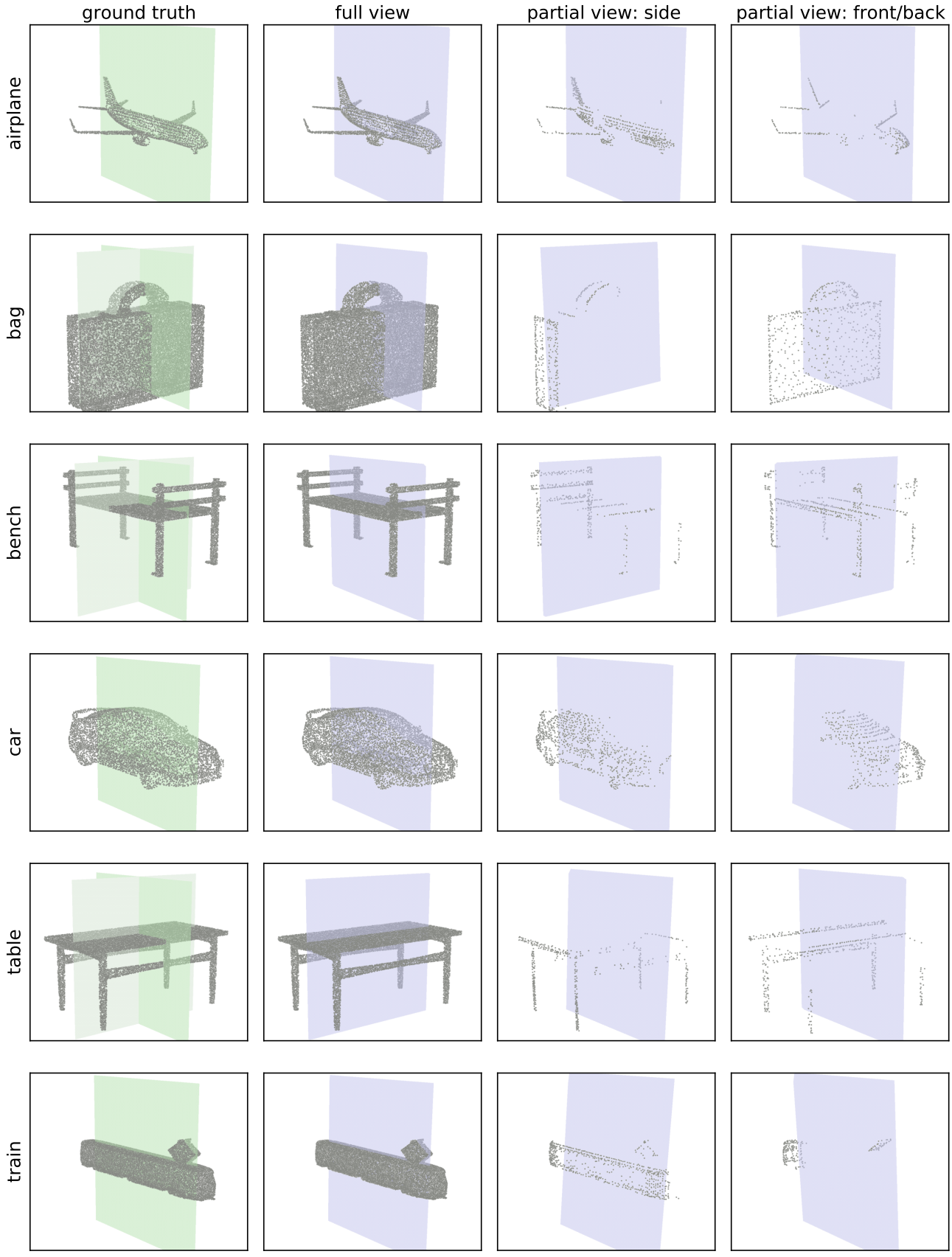

Figure 1. Examples of the estimated planes for both full and partial pointclouds from ShapeNet [1].