1. Additional Top-K Retrieval Qualitative Results

In Figure 1, we show additional qualitative results of our Patch2CAD top-K retrieval vs Mask2CAD. We observe that ours can retrieve better and more consistent shapes in the top-K pool than Mask2CAD.

Figure 1: Additional Patch2CAD Top-K retrieval qualitative results on various ScanNet [2] images in comparison with Mask2CAD.
Figure 2: Additional qualitative results of Patch2CAD (ours) on various ScanNet [2] images.
2. Additional Qualitative Results

In Figure 2, we show additional qualitative results of Patch2CAD on ScanNet [2] images, with Scan2CAD [1] targets. Ours is able to retrieve better matching shapes to the groundtruth than Mask2CAD [3] or Total3D [4].

3. t-SNE embedding of Patch2CAD

We visualize several t-SNE embeddings in Figure 3, where CAD patches can tend to cluster near each other (there are many locally very similar patches), but also near similar image patches (e.g., chair seat corner, tabletop).

4. Effect of the number of query ($K_q$) and retrieved patches ($K_r$).

We use one model for all inference time ablation studies in this section. All parameters are the same as the main paper unless stated otherwise. The noise across independent runs are $\approx 0.1$ Mesh AP.

Table 1 analyzes query $K_q$ patches per detection at test time. We see that more patches result in better retrieval.

Table 2 shows improvement with retrieved $K_r$ per test query, due to robustness of voting when $K_r$ is high.

<table>
<thead>
<tr>
<th>$K_q$</th>
<th>1</th>
<th>3</th>
<th>6</th>
<th>9</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td>9.2</td>
<td>9.8</td>
<td>10.2</td>
<td><strong>10.3</strong></td>
<td>10.2</td>
</tr>
</tbody>
</table>

Table 1: Mesh AP vs the number of query patches.

<table>
<thead>
<tr>
<th>$K_r$</th>
<th>1</th>
<th>3</th>
<th>6</th>
<th>12</th>
<th>24</th>
<th>48</th>
<th>96</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td>9.3</td>
<td>9.4</td>
<td>9.8</td>
<td>10.0</td>
<td><strong>10.3</strong></td>
<td><strong>10.6</strong></td>
<td>10.6</td>
</tr>
</tbody>
</table>

Table 2: Mesh AP vs the number of retrieved patches.

References