Contents

A Extended Results on the Shape Reconstruction Experiment (using the SHREC [1] data-set) 2
A.1. Statistics on shape completions - Volume Estimation Error 2
A.2. Additional completion examples with unseen area < 50% 3
A.3. Additional completion examples with unseen area < 50% 4
A.4. Additional completion examples with unseen area > 50% 5

References

A. Extended Results on the Shape Reconstruction Experiment (using the SHREC [1] data-set)

A.1. Statistics on shape completions - Volume Estimation Error

Figure 1 below (which is Figure 6 from the paper) summarized the reconstruction errors (y-axis) for the 36 instances (6 instances for each of the 6 shapes), as a function of the % of unseen surface (x-axis). It showed that the algorithm performs well when the occluded surface area is almost up to ∼50% of the entire surface and beyond that performance degrades rather quickly.

Figure 2. Statistics on SHREC [1] shape completions - Volume Estimation Error: See main paper and the caption of Figure 1 for experiment details. Here we measure the Volume Estimation Error, which is the difference between the reconstructed and true shape volumes, as a percent of the true volume. Notice that up to an occlusion rate of almost ∼50% the volume estimation is fairly accurate and is relatively unbiased. See Figure 7 in the paper and Figures 3 and 4 for many visual examples with such occlusion rates of up to 50%. Beyond such an occlusion rate the performance deteriorates - see Figure 8 from the paper as well as Figure 5 for such cases.
A.2. Additional completion examples with unseen area < 50%

shape: ‘SHREC woman 1’
unseen area: 17.6%
Reconstruction Errors:
  Ours: 15%  Poisson: 6%

shape: ‘SHREC woman 2’
unseen area: 40.5%
Reconstruction Errors:
  Ours: 24%  Poisson: 501%

shape: ‘SHREC bull 1’
unseen area: 37.0%
Reconstruction Errors:
  Ours: 16%  Poisson: 54%

shape: ‘SHREC armadilo 1’
unseen area: 36.8%
Reconstruction Errors:
  Ours: 21%  Poisson: 33%

shape: ‘SHREC armadilo 2’
unseen area: 37.3%
Reconstruction Errors:
  Ours: 21%  Poisson: 19%

shape: ‘SHREC armadilo 3’
unseen area: 40.6%
Reconstruction Errors:
  Ours: 20%  Poisson: 135%

(a) Ours  (b) True  (c) Poisson  (d) Ours  (e) True  (f) Poisson

Figure 3. Shape completion examples (with unseen area < 50%): These examples extend Figure 7 from the paper (see its caption for further details). We show here an additional instance for each of the 6 used shapes.
A.3. Additional completion examples with unseen area < 50%

shape: ‘SHREC woman 1’
unseen area: 39.5%
Reconstruction Errors:
Ours: 33%  Poisson: 39%

shape: ‘SHREC woman 2’
unseen area: 41.9%
Reconstruction Errors:
Ours: 25%  Poisson: 316%

shape: ‘SHREC bull 1’
unseen area: 35.9%
Reconstruction Errors:
Ours: 21%  Poisson: 135%

shape: ‘SHREC armadilo 1’
unseen area: 40.5%
Reconstruction Errors:
Ours: 20%  Poisson: 21%

shape: ‘SHREC armadilo 2’
unseen area: 47.1%
Reconstruction Errors:
Ours: 42%  Poisson: 42%

shape: ‘SHREC armadilo 3’
unseen area: 40.5%
Reconstruction Errors:
Ours: 23%  Poisson: 35%

(a) Ours  (b) True  (c) Poisson  (d) Ours  (e) True  (f) Poisson

Figure 4. Shape completion examples (with unseen area < 50%): These examples extend Figure 7 from the paper (see its caption for further details). We show here an additional instance for each of the 6 used shapes.
A.4. Additional completion examples with unseen area > 50%

**Shape: ‘SHREC woman 1’**
- Unseen area: 54.5%
- Reconstruction Errors:
  - Ours: 34%
  - Poisson: 632%

**Shape: ‘SHREC woman 2’**
- Unseen area: 55.2%
- Reconstruction Errors:
  - Ours: 68%
  - Poisson: 310%

**Shape: ‘SHREC bull 1’**
- Unseen area: 54.3%
- Reconstruction Errors:
  - Ours: 54%
  - Poisson: 161%

**Shape: ‘SHREC armadilo 1’**
- Unseen area: 68.3%
- Reconstruction Errors:
  - Ours: 86%
  - Poisson: 69%

**Shape: ‘SHREC armadilo 2’**
- Unseen area: 69.1%
- Reconstruction Errors:
  - Ours: 80%
  - Poisson: 108%

**Shape: ‘SHREC armadilo 3’**
- Unseen area: 59.1%
- Reconstruction Errors:
  - Ours: 80%
  - Poisson: 236%

---

Figure 5. **Shape completion examples** (with unseen area > 50%): These examples extend Figure 8 from the paper (see its caption for further details). We show here an additional instance for each of the 6 used shapes.