1 Supplementary Material

More results on ShapeNet-55/34. In order to have an intuitive evaluation of reconstructed results, we also provide qualitative evaluations in Fig. 1 compared with results generated from the baseline. We can clearly see the results not only have better numerical performance (Tab. 3) but also the model trained with InfoCD did a better job in reconstructing the surface areas and preserving the details with less noise.

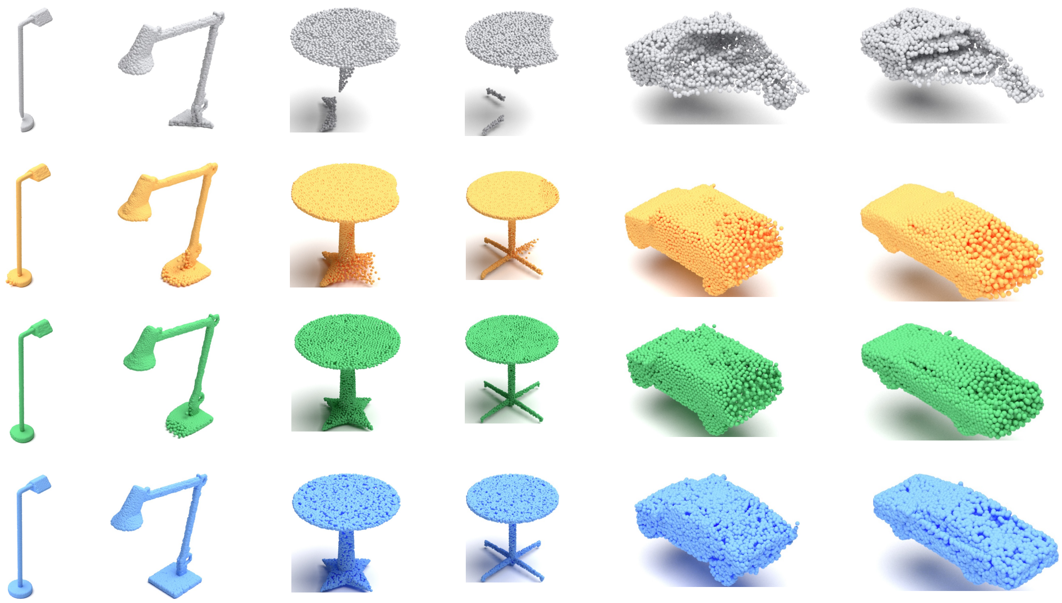

Figure 1: Visual comparison of point cloud completion results on ShapeNet-55 dataset. **Row-1:** Inputs of incomplete point clouds. **Row-2:** Outputs of SeedFormer with CD. **Row-3:** Outputs of SeedFormer with InfoCD. **Row-4:** Ground truth.

We report complete results of our method on ShapeNet-55 in Tab. 3 and results of novel categories on ShapeNet-34 in Tab. 1. We also provide the complete results on ShapeNet-34 in Tab. 2 of two popular baselines. The models are tested under three difficulty levels: simple, moderate and hard. For ShapeNet-55, we can see that with the help of InfoCD, the baseline achieves best scores on all categories. We also provide the complete results on ShapeNet-55 in Tab. 4 of two popular baselines.

Table 1: Detailed results for the novel objects on ShapeNet-34. *S.*, *M.* and *H.* stand for the simple, moderate and hard settings.

CD-ℓ_2 ($\times$ 1000)	PCN [1]			TopNet [2]			PFNet [3]			GRNet [4]			SeedFormer [5]			InfoCD + S.		
	S.	M.	H.	S.	M.	H.	S.	M.	H.	S.	M.	H.	S.	M.	H.	S.	M.	H.
bag	2.48	2.46	3.94	2.08	1.95	4.36	3.88	4.42	9.67	1.47	1.88	3.45	0.49	0.82	1.45	**0.41**	**0.75**	**1.40**
basket	2.79	2.51	4.78	2.46	2.11	5.18	4.47	4.55	14.46	1.78	1.94	4.18	0.60	0.85	1.98	**0.55**	**0.80**	**1.81**
birdhouse	3.53	3.47	5.31	3.17	2.97	5.89	3.9	4.65	9.88	1.89	2.34	5.16	0.72	1.19	2.31	**0.67**	**1.02**	**2.18**
bowl	2.66	2.35	3.97	2.46	2.16	4.84	4.35	5.0	14.59	1.77	1.97	3.9	0.60	0.77	1.50	**0.51**	**0.65**	**1.42**
camera	4.84	5.3	8.03	4.24	4.43	8.11	6.78	8.04	13.91	2.31	3.38	7.2	0.89	1.77	3.75	**0.82**	**1.67**	**3.63**
can	1.95	1.89	5.21	2.02	1.7	5.82	2.95	3.47	23.02	1.53	1.8	3.08	0.56	0.89	1.57	**0.47**	**0.72**	**1.35**
cap	7.21	7.14	10.94	4.68	4.23	9.17	14.11	14.86	28.23	3.29	4.87	13.02	0.50	1.34	5.19	**0.38**	**1.12**	**4.23**
keyboard	1.07	1.0	1.23	0.79	0.77	1.55	1.13	1.16	2.58	0.73	0.77	1.11	0.32	0.41	0.60	**0.23**	**0.31**	**0.52**
dishwasher	2.45	2.09	3.53	2.51	1.77	4.72	3.44	3.78	9.31	1.79	1.7	3.27	0.63	0.78	1.44	**0.55**	**0.72**	**1.35**
earphone	7.88	6.59	16.53	5.33	4.83	11.67	20.31	23.21	39.49	4.29	4.16	10.3	1.18	2.78	6.71	**1.05**	**2.21**	**6.77**
helmet	6.15	6.41	9.16	4.89	4.86	8.73	8.78	10.07	21.2	3.06	4.38	10.27	1.10	2.27	4.78	**1.01**	**2.17**	**4.76**
mailbox	2.74	2.68	4.31	2.35	2.2	4.91	5.2	5.33	10.94	1.52	1.9	4.33	0.56	0.99	2.06	**0.47**	**0.87**	**1.95**
microphone	4.36	4.65	8.46	3.03	3.2	7.15	6.39	7.99	19.41	2.29	3.23	8.41	0.80	1.61	4.21	**0.61**	**1.56**	**4.02**
microwaves	2.59	2.35	4.47	2.67	2.12	5.41	3.89	4.08	9.01	1.74	1.81	3.82	0.64	0.83	1.69	**0.61**	**0.75**	**1.51**
pillow	2.09	2.16	3.54	2.08	2.05	4.01	4.15	4.29	12.01	1.43	1.69	3.43	0.43	0.66	1.45	**0.38**	**0.52**	**1.35**
printer	3.28	3.6	5.56	2.9	2.96	6.07	5.38	5.94	10.29	1.82	2.41	5.09	0.69	1.25	2.33	**0.62**	**1.17**	**2.15**
remote	0.95	1.08	1.58	0.89	0.89	2.28	1.51	1.75	6.0	0.82	1.02	1.29	0.27	0.42	0.61	**0.21**	**0.34**	**0.50**
rocket	1.39	1.22	2.01	1.14	0.96	2.03	1.84	1.51	4.01	0.97	0.79	1.6	0.28	0.51	1.02	**0.17**	**0.41**	**0.95**
skateboard	1.97	1.78	2.45	1.23	1.2	2.01	2.43	2.53	4.25	0.93	1.07	1.83	0.35	0.56	0.92	**0.27**	**0.51**	**0.81**
tower	2.37	2.4	4.35	2.2	2.17	5.47	3.38	4.15	13.11	1.35	1.8	3.85	0.51	0.92	1.87	**0.46**	**0.81**	**1.72**
washer	2.77	2.52	4.64	2.63	2.14	6.57	4.53	4.27	9.23	1.83	1.97	5.28	0.61	0.87	1.94	**0.51**	**0.72**	**1.83**
mean	3.22	3.13	5.43	2.65	2.46	5.52	5.37	5.95	13.55	1.84	2.23	4.95	0.61	1.07	2.35	**0.54**	**1.01**	**2.18**

Table 2: More detailed results for the novel objects on ShapeNet-34. *S.*, *M.* and *H.* stand for the simple, moderate and hard settings.

CD-ℓ_2($\times$ 1000)	FoldingNet [6]			InfoCD + FoldingNet			PoinTr [7]			InfoCD + PoinTr		
	S.	M.	H.	S.	M.	H.	S.	M.	H.	S.	M.	H
bag	2.15	2.27	3.99	**1.75**	**1.98**	**3.47**	0.96	1.34	2.08	**0.52**	**0.85**	**1.59**
basket	2.37	2.2	4.87	**1.90**	**1.94**	**4.46**	1.04	1.4	2.9	**0.59**	**0.84**	**2.06**
birdhouse	3.27	3.15	5.62	**2.81**	**2.84**	**5.18**	1.22	1.79	3.45	**0.75**	**1.24**	**2.58**
bowl	2.61	2.3	4.55	**2.18**	**2.01**	**4.08**	1.05	1.32	2.4	**0.60**	**0.77**	**1.47**
camera	4.4	4.78	7.85	**4.01**	**4.45**	**7.36**	1.63	2.67	4.97	**1.00**	**1.95**	**4.26**
can	1.95	1.73	5.86	**1.52**	**1.41**	**1.38**	0.8	1.17	2.85	**0.51**	**0.83**	**1.81**
cap	6.07	5.98	11.49	**5.63**	**5.67**	**11.98**	1.4	2.74	8.35	**0.57**	**1.30**	**5.42**
keyboard	0.98	0.96	1.35	**0.53**	**0.64**	**0.84**	0.43	0.45	0.63	**0.29**	**0.34**	**0.54**
dishwasher	2.09	1.8	4.55	**1.55**	**1.45**	**4.09**	0.93	1.05	2.04	**0.55**	**0.73**	**1.49**
earphone	6.86	6.96	12.77	**6.43**	**6.62**	**12.26**	2.03	5.1	10.69	**1.05**	**2.49**	**7.91**
helmet	4.86	5.04	8.86	**4.41**	**4.71**	**8.34**	1.86	3.3	6.96	**1.11**	**2.40**	**5.88**
mailbox	2.2	2.29	4.49	**1.83**	**1.94**	**4.02**	1.03	1.47	3.34	**0.53**	**0.94**	**2.21**
microphone	2.92	3.27	8.54	**2.51**	**2.92**	**8.01**	1.25	2.27	5.47	**0.83**	**1.52**	**4.00**
microwaves	2.29	2.12	5.17	**1.83**	**1.81**	**1.75**	1.01	1.18	2.14	**0.63**	**0.81**	**1.75**
pillow	2.07	2.11	3.73	**1.64**	**1.82**	**3.22**	0.92	1.24	2.39	**0.48**	**0.69**	**1.59**
printer	3.02	3.23	5.53	**2.61**	**2.97**	**5.02**	1.18	1.76	3.1	**0.71**	**1.27**	**2.52**
remote	0.89	0.92	1.85	**0.42**	**0.61**	**1.38**	0.44	0.58	0.78	**0.26**	**0.38**	**0.57**
rocket	1.28	1.09	2.0	**0.81**	**0.77**	**1.51**	0.39	0.72	1.39	**0.30**	**0.53**	**1.01**
skateboard	1.53	1.42	1.99	**1.16**	**1.10**	**1.48**	0.52	0.8	1.31	**0.36**	**0.60**	**0.88**
tower	2.25	2.25	4.74	**1.80**	**1.93**	**4.22**	0.82	1.35	2.48	**0.50**	**0.93**	**1.98**
washer	2.58	2.34	5.5	**1.12**	**2.07**	**5.02**	1.04	1.39	2.73	**0.60**	**0.87**	**2.08**
mean	2.79	2.77	5.49	**2.42**	**2.49**	**5.01**	1.05	1.67	3.45	**0.61**	**1.06**	**2.55**

Table 3: Detailed results on ShapeNet-55. *S.*, *M.* and *H.* stand for the simple, moderate and hard settings.

CD-ℓ_2($\times$ 1000)	PCN [1]			TopNet [2]			PFNet [3]			GRNet [4]			SeedFormer [5]			InfoCD + S.		
	S.	M.	H.	S.	M.	H.	S.	M.	H.	S.	M.	H.	S.	M.	H.	S.	M.	H.
airplane	0.9	0.89	1.32	1.02	0.99	1.48	1.35	1.44	2.69	0.87	0.87	1.27	0.23	0.35	0.61	**0.22**	**0.33**	**0.58**
trash bin	2.16	2.18	5.15	2.51	2.32	5.03	4.03	3.39	9.63	1.69	2.01	3.48	0.23	0.35	0.61	**0.22**	**0.33**	**0.58**
bag	2.11	2.04	4.44	2.36	2.23	4.21	3.63	3.66	7.6	1.41	1.7	2.97	0.43	0.67	1.28	**0.42**	**0.65**	**1.20**
basket	2.21	2.1	4.55	2.62	2.43	5.71	4.74	3.88	8.47	1.65	1.84	3.15	0.65	0.83	1.54	**0.63**	**0.81**	**1.46**
bathtub	2.11	2.09	3.94	2.49	2.25	4.33	3.64	3.5	5.74	1.46	1.73	2.73	0.52	0.82	1.45	**0.51**	**0.78**	**1.38**
bed	2.86	3.07	5.54	3.13	3.1	5.71	4.44	5.36	9.14	1.64	2.03	3.7	0.63	0.91	1.89	**0.62**	**0.88**	**1.80**
bench	1.31	1.24	2.14	1.56	1.39	2.4	2.17	2.16	4.11	1.03	1.09	1.71	0.32	0.42	0.84	**0.31**	**0.40**	**0.80**
birdhouse	3.29	3.53	6.69	3.73	3.98	6.8	3.96	5.0	9.66	1.87	2.4	4.71	0.76	1.30	2.46	**0.76**	**1.26**	**2.35**
bookshelf	2.7	2.7	4.61	3.11	2.87	4.87	3.19	3.47	5.72	1.42	1.71	2.78	0.57	0.84	1.57	**0.56**	**0.82**	**1.52**
bottle	1.25	1.43	4.61	1.56	1.66	4.02	2.37	2.89	10.03	1.05	1.44	2.67	0.31	0.63	1.21	**0.31**	**0.60**	**1.17**
bowl	2.05	1.83	3.66	2.33	1.98	4.82	4.3	3.97	8.76	1.6	1.77	2.99	0.56	0.65	1.18	**0.54**	**0.64**	**1.14**
bus	1.2	1.14	2.08	1.32	1.21	2.29	2.06	1.88	3.75	1.06	1.16	1.48	0.42	0.55	0.73	**0.41**	**0.54**	**0.72**
cabinet	1.6	1.49	3.47	1.91	1.65	3.36	2.72	2.37	4.73	1.27	1.41	2.09	0.57	0.69	1.05	**0.56**	**0.67**	**1.05**
camera	4.05	4.54	8.27	4.75	4.98	9.24	6.57	8.04	13.11	2.14	3.15	6.09	0.83	1.68	3.45	**0.80**	**1.65**	**3.44**
can	2.02	2.28	6.48	2.67	2.4	5.5	5.65	4.05	16.29	1.58	2.11	3.81	0.58	1.03	1.79	**0.56**	**1.00**	**1.75**
cap	1.82	1.76	4.2	3.0	2.69	5.59	10.92	9.04	20.3	1.17	1.37	3.05	0.33	0.45	1.18	**0.33**	**0.42**	**1.02**
car	1.48	1.47	2.6	1.71	1.65	3.17	2.06	2.1	3.43	1.29	1.48	2.14	0.65	0.86	1.17	**0.64**	**0.84**	**1.12**
cellphone	0.8	0.79	1.71	1.01	0.96	1.8	1.25	1.37	3.65	0.82	0.91	1.18	0.31	0.40	0.54	**0.30**	**0.38**	**0.52**
chair	1.7	1.81	3.34	1.97	2.04	3.59	2.94	3.48	6.34	1.24	1.56	2.73	0.41	0.65	1.38	**0.40**	**0.63**	**1.31**
clock	2.1	2.01	3.98	2.48	2.16	4.03	3.15	3.27	6.03	1.46	1.66	2.67	0.53	0.74	1.35	**0.51**	**0.71**	**1.29**
keyboard	0.82	0.82	1.04	0.88	0.83	1.15	0.83	1.06	1.97	0.74	0.81	1.09	0.28	0.36	0.45	**0.28**	**0.34**	**0.45**
dishwasher	1.93	1.66	4.39	2.43	1.74	4.64	4.57	3.23	6.39	1.43	1.59	2.53	0.56	0.69	1.30	**0.55**	**0.66**	**1.31**
display	1.56	1.66	3.26	1.84	1.85	3.48	2.27	2.83	5.52	1.13	1.38	2.29	0.39	0.59	1.10	**0.38**	**0.56**	**1.05**
earphone	3.13	2.94	7.56	4.36	4.47	8.36	15.07	17.5	33.37	1.78	2.18	5.33	0.64	1.04	2.75	**0.59**	**0.96**	**2.43**
faucet	3.21	3.48	7.52	3.61	3.59	7.25	5.68	6.79	14.29	1.81	2.32	4.91	0.55	1.15	2.63	**0.49**	**1.00**	**2.63**
filecabinet	2.02	1.97	4.14	2.41	2.12	4.12	3.72	3.57	7.13	1.46	1.71	2.89	0.63	0.84	1.49	**0.61**	**0.81**	**1.48**
guitar	0.42	0.38	1.23	0.57	0.47	1.42	0.74	0.89	5.41	0.44	0.48	0.76	0.13	0.19	0.32	**0.12**	**0.18**	**0.32**
helmet	3.76	4.18	7.53	4.36	4.55	7.73	9.55	8.41	15.44	2.33	3.18	6.03	0.79	1.52	3.61	**0.78**	**1.48**	**3.32**
jar	2.57	2.82	6.0	3.03	3.17	7.03	5.44	5.56	11.87	1.72	2.37	4.37	0.63	1.13	2.36	**0.63**	**1.12**	**2.24**
knife	0.94	0.62	1.37	0.84	0.68	1.44	2.11	1.53	3.89	0.72	0.66	0.96	0.15	0.28	0.45	**0.15**	**0.26**	**0.43**
lamp	3.1	3.45	7.02	3.03	3.39	8.15	6.82	7.61	14.22	1.68	2.43	5.17	0.45	1.06	2.67	**0.42**	**1.03**	**2.60**
laptop	0.75	0.79	1.59	0.8	0.85	1.66	1.04	1.21	2.46	0.83	0.87	1.28	0.32	0.37	0.55	**0.31**	**0.36**	**0.54**
loudspeaker	2.5	2.45	5.08	3.1	2.76	5.32	4.32	4.19	7.6	1.75	2.08	3.45	0.67	1.01	1.80	**0.65**	**0.98**	**1.75**
mailbox	1.66	1.74	5.18	2.16	2.1	5.1	3.82	4.2	10.51	1.15	1.59	3.42	0.30	0.67	2.04	**0.31**	**0.63**	**1.96**
microphone	3.44	3.9	8.52	2.83	3.49	6.87	6.58	7.56	16.74	2.09	2.76	5.7	0.62	1.61	3.66	**0.56**	**1.39**	**3.19**
microwaves	2.2	2.01	4.65	2.65	2.15	5.07	4.63	3.94	6.52	1.51	1.72	2.76	0.63	0.79	1.47	**0.62**	**0.77**	**1.42**
motorbike	2.03	2.01	3.13	2.29	2.25	3.54	2.17	2.48	5.09	1.38	1.52	2.26	0.68	0.96	1.44	**0.66**	**0.93**	**1.40**
mug	2.45	2.48	5.17	2.89	2.56	5.43	4.76	4.3	8.37	1.75	2.16	3.79	0.79	1.03	2.06	**0.75**	**1.03**	**2.04**
piano	2.64	2.74	4.83	2.99	2.89	5.64	4.57	5.26	9.26	1.53	1.82	3.21	0.62	0.87	1.79	**0.59**	**0.82**	**1.66**
pillow	1.85	1.81	3.68	2.31	2.26	4.19	4.21	3.82	7.89	1.42	1.67	3.04	0.48	0.75	1.41	**0.45**	**0.67**	**1.27**
pistol	1.25	1.17	2.65	1.5	1.3	2.62	2.27	2.09	7.2	1.11	1.06	1.76	0.37	0.56	0.96	**0.36**	**0.54**	**0.92**
flowerpot	3.32	3.39	6.04	3.61	3.45	6.28	4.83	5.51	10.68	2.02	2.48	4.19	0.93	1.30	2.32	**0.90**	**1.26**	**2.23**
remote	0.99	0.97	2.04	1.14	1.17	2.16	1.74	2.37	4.61	0.89	1.05	1.29	0.29	0.46	0.62	**0.29**	**0.44**	**0.64**
rifle	0.98	0.8	1.31	0.98	0.86	1.46	1.72	1.45	3.02	0.83	0.77	1.16	0.27	0.41	0.66	**0.25**	**0.39**	**0.62**
rocket	1.05	1.04	1.87	1.04	1.0	1.93	1.65	1.61	3.82	0.78	0.92	1.44	0.21	0.46	0.83	**0.19**	**0.42**	**0.80**
skateboard	1.04	0.94	1.68	1.08	1.05	1.84	1.43	1.6	3.09	0.82	0.87	1.24	0.23	0.32	0.62	**0.22**	**0.30**	**0.50**
sofa	1.65	1.61	2.92	1.93	1.76	3.39	2.65	2.53	4.84	1.35	1.45	2.32	0.50	0.62	1.02	**0.48**	**0.60**	**0.97**
stove	2.07	2.02	4.72	2.44	2.16	4.84	4.03	3.71	7.15	1.46	1.72	3.22	0.59	0.87	1.49	**0.58**	**0.84**	**1.46**
table	1.56	1.5	3.36	1.78	1.65	3.21	3.03	3.11	5.74	1.15	1.33	2.33	0.41	0.58	1.18	**0.40**	**0.55**	**1.11**
telephone	0.8	0.8	1.67	1.02	0.95	1.78	1.3	1.47	3.37	0.81	0.89	1.18	0.31	0.39	0.55	**0.30**	**0.38**	**0.52**
tower	1.91	1.97	4.47	2.15	2.05	4.51	3.13	3.54	9.87	1.26	1.69	3.06	0.47	0.84	1.65	**0.46**	**0.78**	**1.54**
train	1.5	1.41	2.37	1.59	1.44	2.51	2.01	2.03	4.1	1.09	1.14	1.61	0.51	0.66	1.01	**0.48**	**0.64**	**0.97**
watercraft	1.46	1.39	2.4	1.53	1.42	2.67	2.1	2.13	4.58	1.09	1.12	1.65	0.35	0.56	0.92	**0.33**	**0.53**	**0.89**
washer	2.42	2.31	6.08	2.92	2.53	6.53	5.55	4.11	7.04	1.72	2.05	4.19	0.64	0.91	2.04	**0.62**	**0.88**	**2.04**
mean	1.96	1.98	4.09	2.26	2.17	4.31	3.84	3.88	8.03	1.35	1.63	2.86	0.50	0.77	1.49	**0.43**	**0.71**	**1.38**

Table 4: More detailed results on ShapeNet-55. *S.*, *M.* and *H.* stand for the simple, moderate and hard settings.

CD-ℓ_2($\times$ 1000)	FoldingNet [6]			InfoCD + FoldingNet			PoinTr [7]			InfoCD + PoinTr		
	S.	M.	H.	S.	M.	H.	S.	M.	H.	S.	M.	H
airplane	1.36	1.28	1.7	**1.20**	**1.26**	**1.51**	0.27	0.38	0.69	**0.23**	**0.34**	**0.60**
trash bin	2.93	2.9	5.03	**2.13**	**2.49**	**3.91**	0.8	1.15	2.15	**0.65**	**0.96**	**1.83**
bag	2.31	2.38	3.67	**2.10**	**2.34**	**3.05**	0.53	0.74	1.51	**0.45**	**0.66**	**1.24**
basket	2.98	2.77	4.8	**2.22**	**2.51**	**3.85**	0.73	0.88	1.82	**0.58**	**0.73**	**1.46**
bathtub	2.68	2.66	4.0	**2.24**	**2.49**	**3.13**	0.64	0.94	1.68	**0.52**	**0.77**	**1.43**
bed	4.24	4.08	5.65	**3.44**	**4.02**	**5.28**	0.76	1.1	2.26	**0.62**	**0.93**	**1.91**
bench	1.94	1.77	2.36	**1.44**	**1.52**	**2.02**	0.38	0.52	0.94	**0.33**	**0.42**	**0.81**
birdhouse	4.06	4.18	5.88	**3.29**	**3.94**	**5.47**	0.98	1.49	3.13	**0.79**	**1.25**	**2.60**
bookshelf	3.04	3.03	3.91	**2.82**	**2.94**	**3.30**	0.71	1.06	1.93	**0.59**	**0.87**	**1.65**
bottle	1.7	1.91	4.02	**1.29**	**1.74**	**2.43**	0.37	0.74	1.5	**0.30**	**0.59**	**1.30**
bowl	2.79	2.6	4.23	**2.45**	**2.56**	**3.66**	0.68	0.78	1.44	**0.56**	**0.60**	**1.09**
bus	1.47	1.42	2.0	**1.27**	**1.30**	**1.50**	0.42	0.55	0.79	**0.36**	**0.48**	**0.69**
cabinet	2.0	1.86	2.79	**1.49**	**1.58**	**1.97**	0.55	0.66	1.16	**0.49**	**0.57**	**0.99**
camera	5.5	6.04	8.87	**4.94**	**6.19**	**8.35**	1.1	2.03	4.34	**0.89**	**1.71**	**3.79**
can	2.84	2.68	5.71	**1.71**	**2.44**	**3.79**	0.68	1.19	2.14	**0.54**	**1.04**	**2.02**
cap	4.1	4.04	5.87	**2.82**	**3.55**	**7.77**	0.46	0.62	1.64	**0.34**	**0.41**	**0.94**
car	1.81	1.81	2.31	**1.64**	**1.73**	**1.95**	0.64	0.86	1.25	**0.52**	**0.72**	**1.06**
cellphone	1.04	1.06	1.87	**0.76**	**0.90**	**1.12**	0.32	0.39	0.6	**0.28**	**0.32**	**0.47**
chair	2.37	2.46	3.62	**1.93**	**2.27**	**3.07**	0.49	0.74	1.63	**0.41**	**0.62**	**1.39**
clock	2.56	2.41	3.46	**2.07**	**2.26**	**2.85**	0.62	0.84	1.65	**0.50**	**0.69**	**1.38**
keyboard	1.21	1.18	1.32	**1.58**	**1.34**	**1.21**	0.3	0.39	0.45	**0.32**	**0.35**	**0.43**
dishwasher	2.6	2.17	3.5	**1.31**	**1.48**	**2.32**	0.55	0.69	1.42	**0.48**	**0.57**	**1.30**
display	2.15	2.24	3.25	**1.72**	**2.06**	**2.77**	0.48	0.67	1.33	**0.39**	**0.53**	**1.05**
earphone	6.37	6.48	9.14	**5.57**	**6.64**	**9.99**	0.81	1.38	3.78	**0.61**	**1.00**	**2.62**
faucet	4.46	4.39	7.2	**4.15**	**4.81**	**6.79**	0.71	1.42	3.491	**0.63**	**1.25**	**2.85**
file cabinet	2.59	2.48	3.76	**1.96**	**2.13**	**2.85**	0.63	0.84	1.69	**0.54**	**0.70**	**1.47**
guitar	0.65	0.6	1.25	**0.47**	**0.50**	**0.77**	0.14	0.21	0.42	**0.12**	**0.18**	**0.34**
helmet	5.39	5.37	7.96	**3.99**	**4.90**	**7.64**	0.99	1.93	4.22	**0.80**	**1.48**	**3.81**
jar	3.65	3.87	6.51	**2.98**	**3.65**	**5.44**	0.77	1.33	2.87	**0.64**	**1.07**	**2.40**
knife	1.29	0.87	1.21	**0.72**	**0.74**	**0.85**	0.2	0.33	0.56	**0.15**	**0.27**	**0.51**
lamp	3.93	4.23	6.87	**3.42**	**4.29**	**6.03**	0.64	1.4	3.58	**0.49**	**1.11**	**2.98**
laptop	1.02	1.04	1.96	**0.74**	**0.82**	**1.26**	0.32	0.34	0.6	**0.28**	**0.29**	**0.49**
loudspeaker	3.21	3.15	4.55	**2.47**	**2.76**	**3.71**	0.78	1.16	2.17	**0.63**	**0.98**	**1.86**
mailbox	2.44	2.61	4.98	**1.74**	**2.10**	**3.86**	0.39	0.78	2.56	**0.30**	**0.61**	**2.35**
microphone	4.42	5.06	7.04	**3.90**	**5.48**	**7.02**	0.7	1.66	4.48	**0.54**	**1.45**	**3.40**
microwaves	2.67	2.48	4.43	**1.83**	**1.99**	**3.07**	0.67	0.83	1.82	**0.59**	**0.72**	**1.58**
motorbike	2.63	2.55	3.52	**2.70**	**2.82**	**3.31**	0.75	1.1	1.92	**0.57**	**0.91**	**1.54**
mug	3.66	3.67	5.7	**2.95**	**3.53**	**5.09**	0.91	1.17	2.35	**0.79**	**0.96**	**1.93**
piano	3.86	4.04	6.04	**3.19**	**3.69**	**5.22**	0.76	1.06	2.23	**0.61**	**0.87**	**1.74**
pillow	2.33	2.38	3.87	**1.78**	**1.95**	**2.94**	0.61	0.82	1.56	**0.48**	**0.65**	**1.20**
pistol	1.92	1.62	2.52	**1.52**	**1.55**	**2.04**	0.43	0.66	1.3	**0.35**	**0.57**	**0.97**
flowerpot	4.53	4.68	6.46	**4.21**	**4.67**	**5.92**	1.01	1.51	2.77	**0.83**	**1.23**	**2.33**
printer	3.66	4.01	5.34	**3.05**	**3.87**	**4.81**	0.73	1.21	2.47	**0.65**	**1.04**	**2.16**
remote	1.14	1.2	1.98	**0.91**	**1.03**	**1.18**	0.36	0.53	0.71	**0.28**	**0.40**	**0.57**
rifle	1.27	1.02	1.37	**1.03**	**1.04**	**1.27**	0.3	0.45	0.79	**0.26**	**0.39**	**0.67**
rocket	1.37	1.18	1.88	**0.97**	**1.20**	**1.46**	0.23	0.48	0.99	**0.19**	**0.42**	**0.90**
skateboard	1.58	1.58	2.07	**1.31**	**1.40**	**1.80**	0.28	0.38	0.62	**0.23**	**0.32**	**0.51**
sofa	2.22	2.09	3.14	**1.71**	**1.80**	**2.39**	0.56	0.67	1.14	**0.49**	**0.58**	**1.00**
stove	2.69	2.63	3.99	**1.96**	**2.23**	**2.99**	0.63	0.92	1.73	**0.53**	**0.80**	**1.52**
table	2.23	2.15	3.21	**1.78**	**1.95**	**2.60**	0.46	0.64	1.31	**0.41**	**0.55**	**1.12**
telephone	1.07	1.06	1.75	**0.76**	**0.88**	**1.09**	0.31	0.38	0.59	**0.28**	**0.32**	**0.50**
tower	2.46	2.45	3.91	**2.45**	**2.46**	**3.47**	0.55	0.9	1.95	**0.45**	**0.76**	**1.67**
train	1.86	1.68	2.32	**1.58**	**1.61**	**1.81**	0.5	0.7	1.12	**0.39**	**0.60**	**1.03**
watercraft	1.85	1.69	2.49	**1.55**	**1.67**	**2.10**	0.41	0.62	1.07	**0.34**	**0.55**	**0.93**
washer	3.47	3.2	4.89	**2.44**	**2.60**	**3.62**	0.75	1.06	2.44	**0.62**	**0.89**	**2.02**
mean	2.68	2.66	4.06	**2.17**	**2.50**	**3.46**	0.58	0.88	1.79	**0.47**	**0.73**	**1.50**

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