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Dihedral Angle Mesh Error: supplementary material

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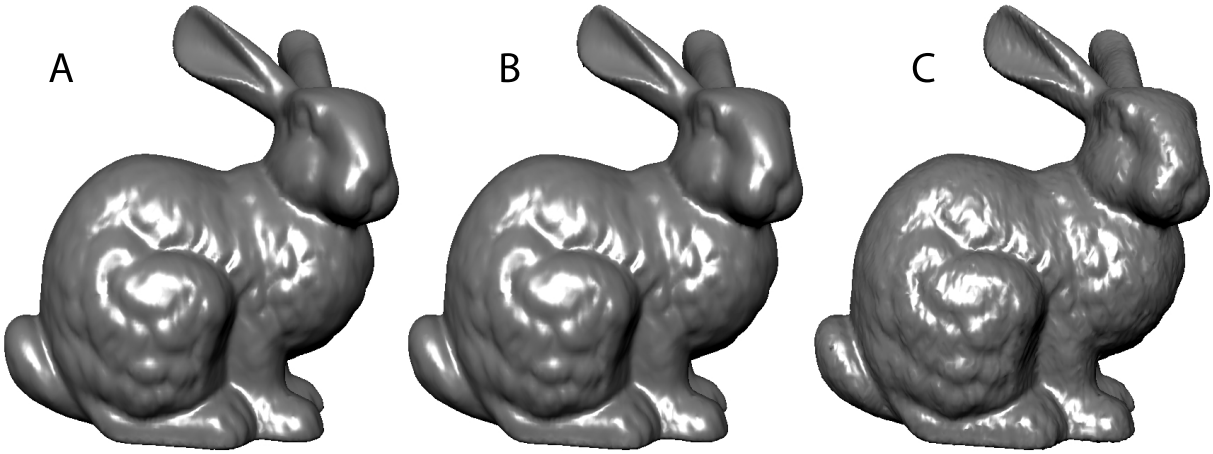

Figure 1: *The original bunny model (A), a version distorted by high pass quantization (B, MSE = 0.00857, DAME = 0.781) and a version distorted by uniform quantization of vertex coordinates (C, MSE = 0.00627, DAME = 1.876). The result of DAME is consistent with the normalized mean opinion scores of 0.142 for version B and 0.884 for version C.*

Appendix A: Distortion type sensitivity

The character of our experiment allows us to attempt to identify which type of distortion causes the largest problems to the proposed metric. For each model, we can normalize the values of both user ratings (mean opinion scores - MOS) and metric values to the same interval $(0, 100)$ and then compare the normalized values for each version. This way, we can identify where the metric has failed most significantly. We can also average the absolute values of the differences for each distortion type to identify which one causes the biggest problems. These results are summarised in table 1. The distortion types are labeled as in section 3; no. 14 is the original which has been included as the hidden anchor.

The averaged differences range from 5.6 for the random affine transform, to 19.6 for the uniform quantization, where the metric has usually predicted lower distortion than reported by the users. The only case where the metric has reported significantly higher error than the users was the smoothing distortion of the *jessi* model.

Table 1: *Absolute differences between normalized MOS and normalized DAME*

	bunny	james	jessi	nissan	out	avg.
1	4.9	8.9	32.1	16.9	15.9	**15.7**
2	7.2	25.2	5.7	27.8	23.9	**18.0**
3	0.1	7.2	9.0	20.0	6.4	**8.6**
4	0.1	12.3	0.0	0.0	15.9	**5.7**
5	4.6	7.1	33.7	26.0	26.4	**19.6**
6	0.0	16.5	19.5	0.2	0.0	**7.2**
7	8.1	0.0	3.1	16.6	0.1	**5.6**
8	30.5	8.6	29.7	0.2	13.0	**16.4**
9	3.1	14.5	1.9	16.8	3.6	**8.0**
10	9.7	17.1	22.8	28.7	2.0	**16.1**
11	N/A	4.6	3.3	0.6	15.7	**6.0**
12	13.5	2.1	39.5	12.9	13.0	**16.2**
13	2.6	16.0	16.5	N/A	4.7	**10.0**
14	11.1	0.9	15.9	4.4	4.4	**7.3**
avg.	**7.4**	**10.1**	**16.6**	**13.2**	**10.3**	