supplemental materials for

Error-Bounded and Feature Preserving Surface Remeshing with Minimal Angle Improvement

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We provide more results of our method and comparisons of surface remeshing with the state-of-the-art methods, i.e., RAR [1], MMGS (an improvement of YAMS) [2], CVT [3], MPS [4] and CVD [5].

In the comparisons, OUR* means the precursory mesh simplification is disabled and OUR means it is enabled. For all our remeshing results, the error-bound threshold δ is set to 0.20% of the diagonal length of the inputs' bounding box. Two sets of results of our method are provided, in which the minimal angle threshold θ is set to 35° and 40°, respectively.

References

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[4] D.-M. Yan and P. Wonka, "Gap processing for adaptive maximal Poisson-disk sampling," *ACM Trans. Graph.*, vol. 32, no. 5, pp. 148:1–148:15, Oct. 2013.

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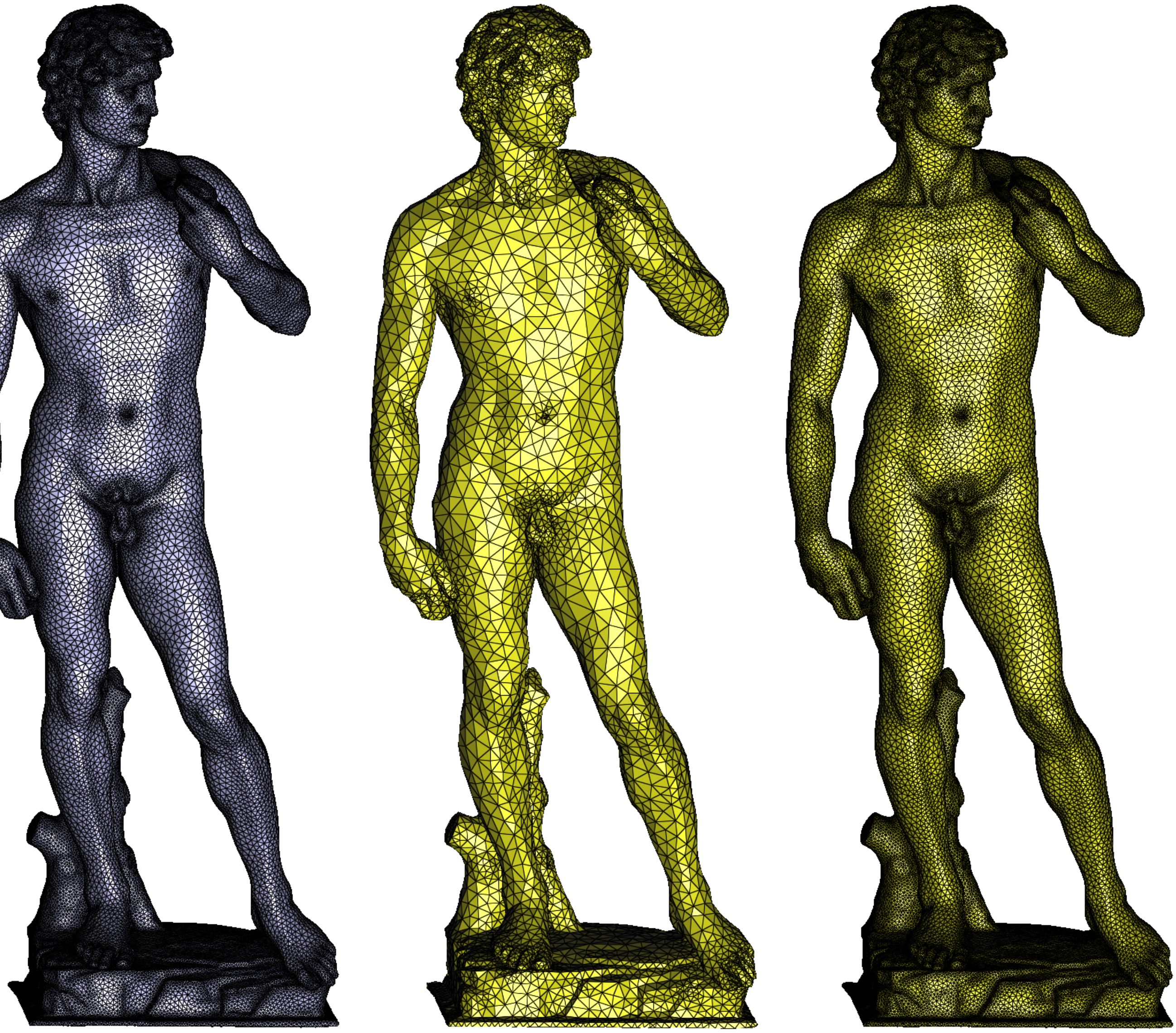

(a) Input (b) OUR (c) OUR*

Fig. 1: Visual results of the dense David model. (a) is the input model. (b) and (c) are the results of our algorithm with/without precursive mesh simplification. In this experiment, the error bound threshold δ is set to 0.15% of the diagonal length of the input's bounding box($\%bb$), and the minimal angle threshold θ is set to 35°. More detailed statistics are listed in Tab. 1.

TABLE 1: Detailed statistics of the remeshing results presented in Fig 1. The term $\#F$ is the number of facets. Other evaluation terms are the same as Tab. 3 in the original paper. Note that our algorithm only improves the quality of triangles who contain angles smaller than θ, which makes the results maintain high geometric fidelity. Furthermore, If the input is dense, the precursive mesh simplification procedure reduces the mesh complexity significantly whereas the approximation error is strictly bounded.

Name	Model	$\#V$	$\#F$	Q_{min}	$\theta_{min}(^{\circ})$	$\theta_{max}(^{\circ})$	Hdist (%bb)	RMS (%bb)	$\theta < 30^{\circ}(\%)$	$V_{567}(\%)$
Dense David	[Input]	59,963	119,942	0.248	11.8	143.6	0	0	0.05	99.1
	[OUR]	9,361	18,738	0.551	35.0	109.4	0.15/0.13	0.023	0	86.0
	[OUR*]	60,601	121,218	0.585	35.0	105.3	0.15/0.05	0.001	0	98.7

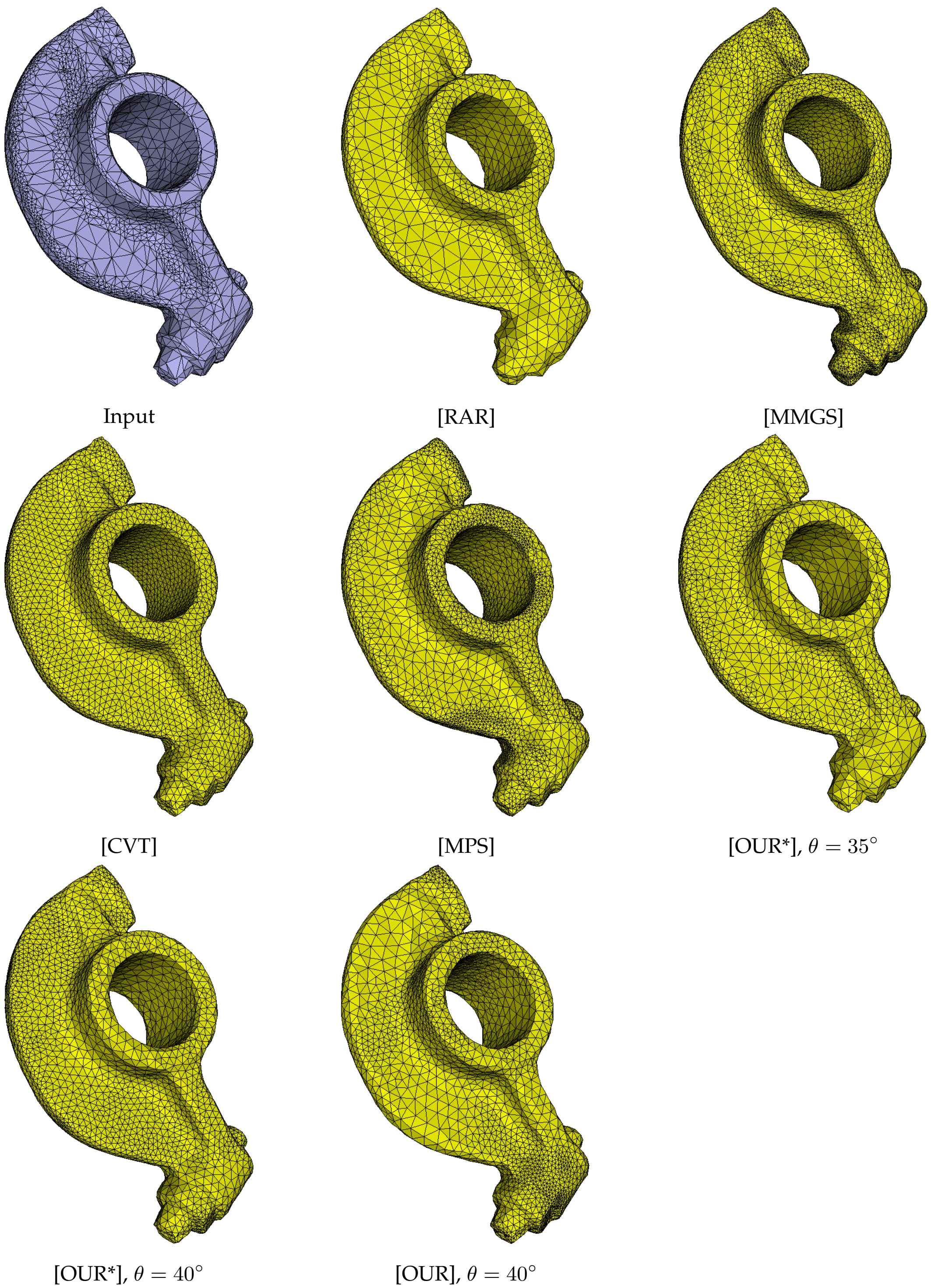

Fig. 2: Remeshing results of the Rocherarm model.

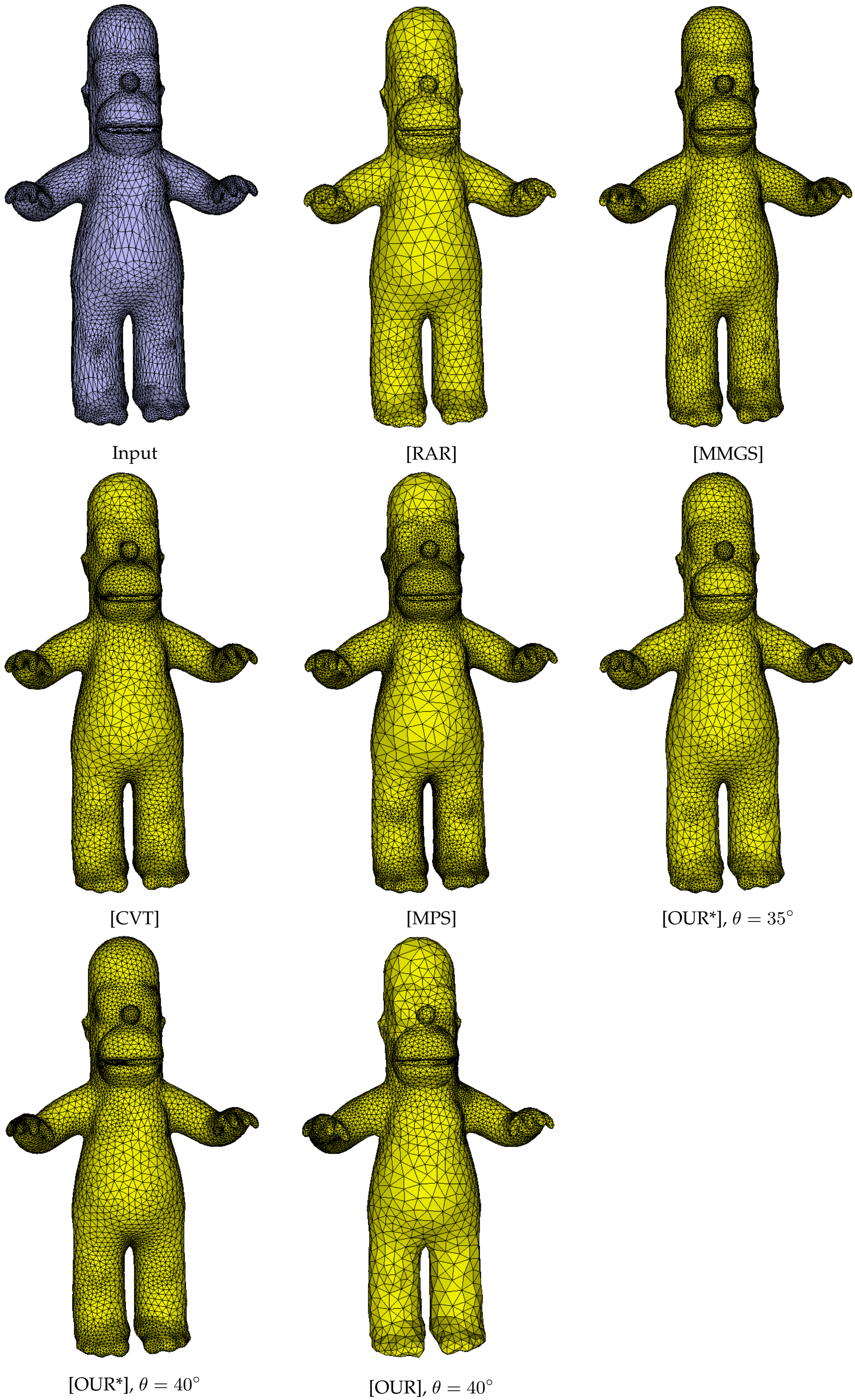

Fig. 3: Remeshing results of the Homer model.

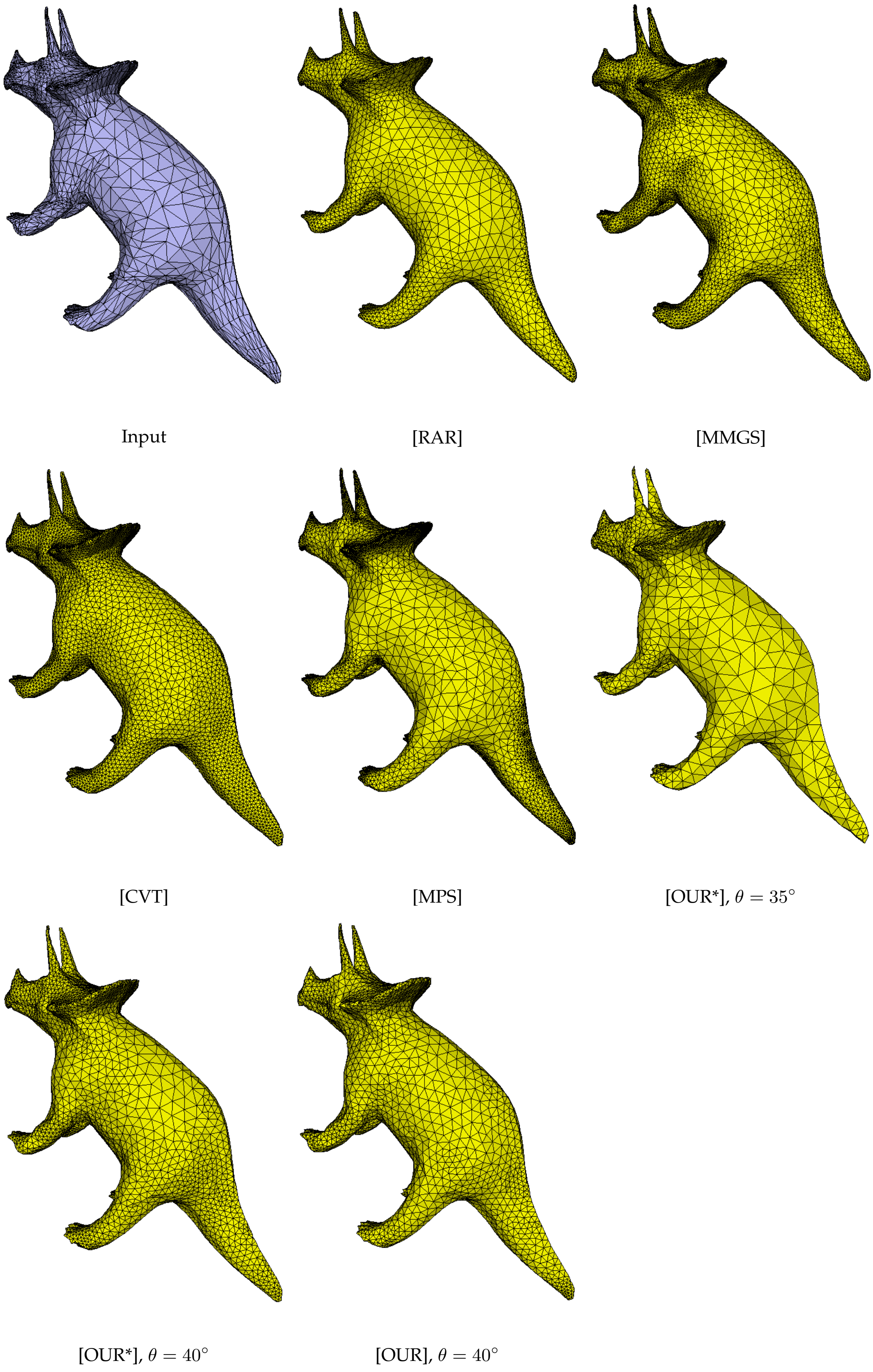

Fig. 4: Remeshing results of the Triceratops model.

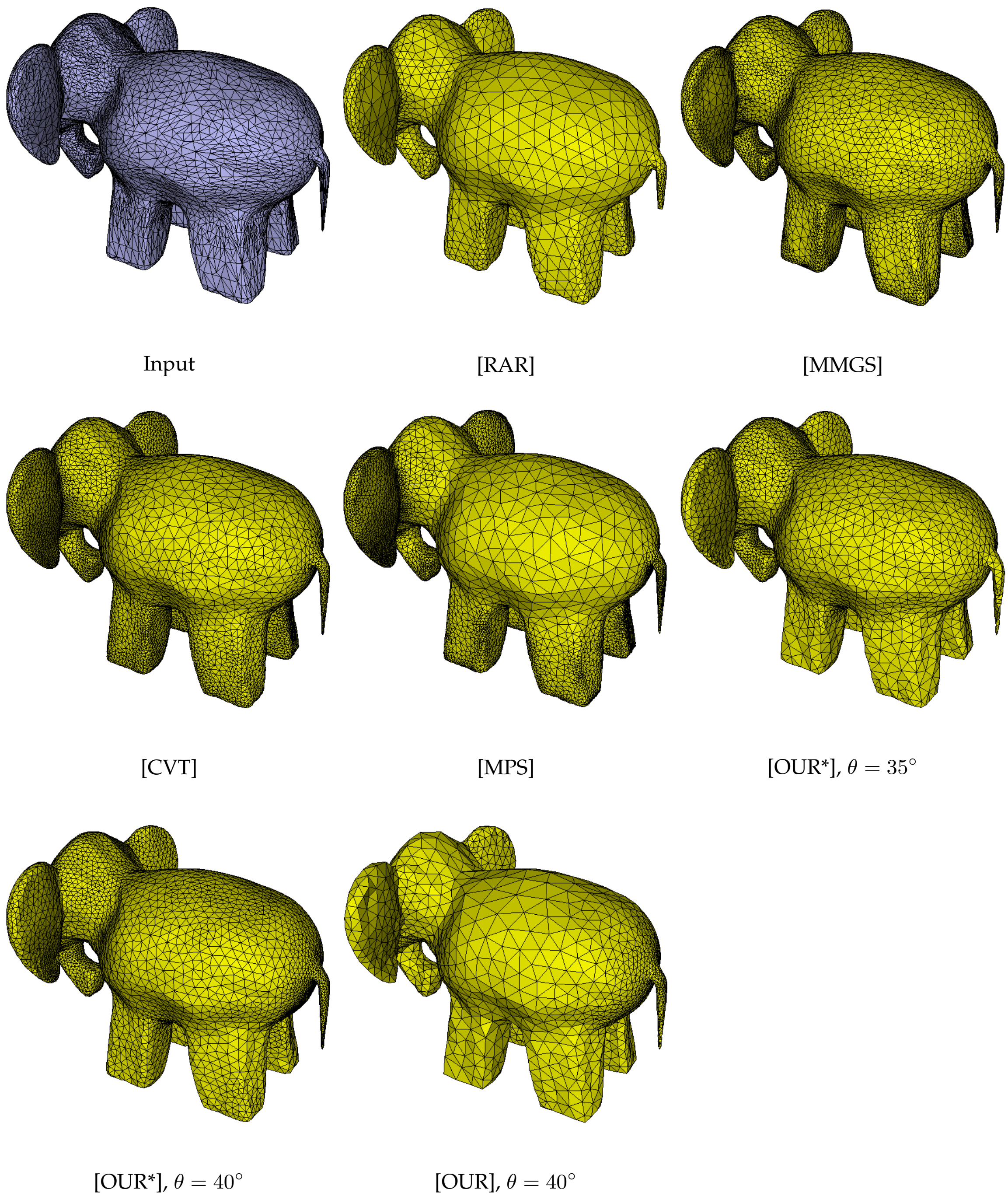

Fig. 5: Remeshing results of the Elephant model.

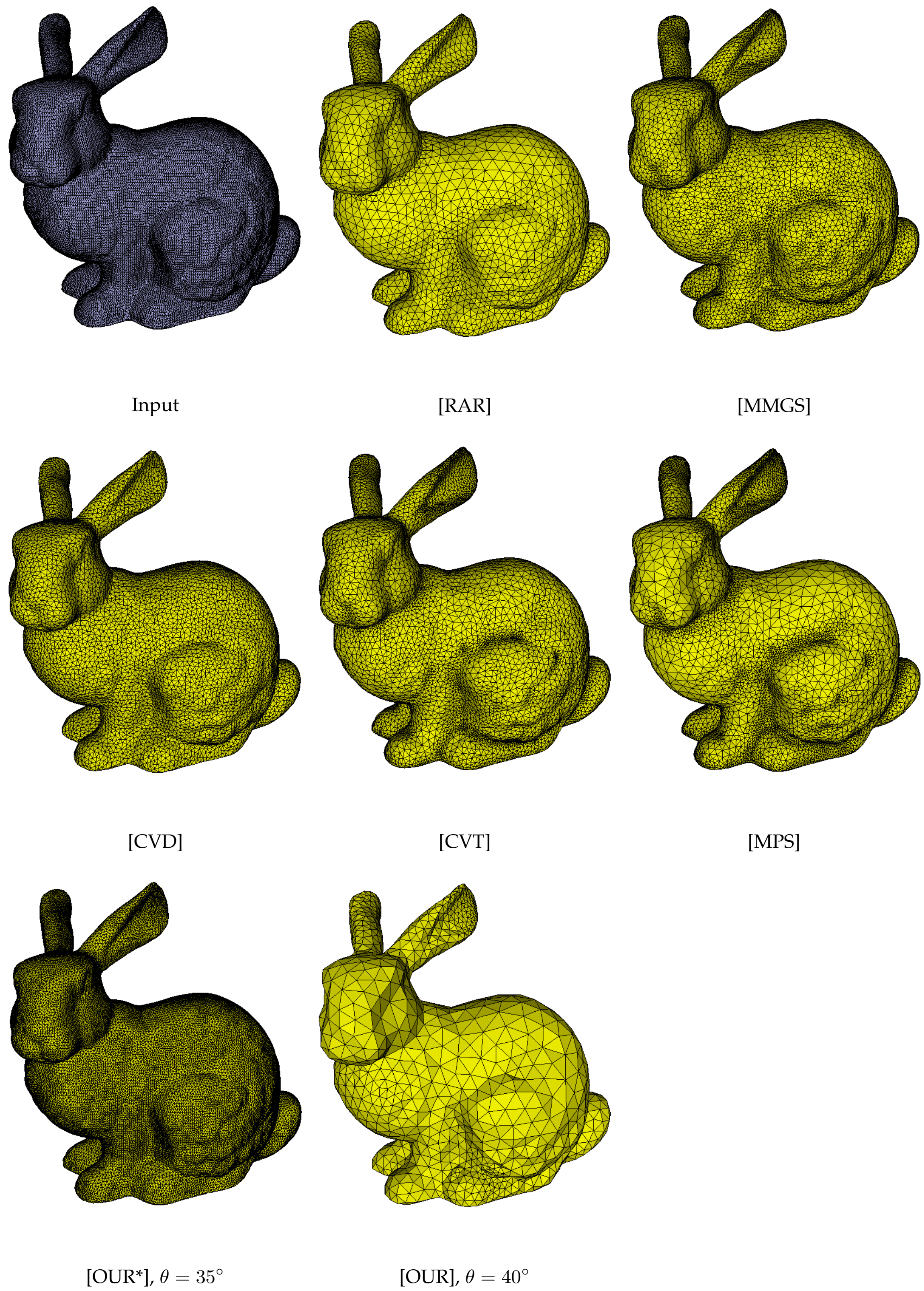

Fig. 6: Remeshing results of the Bunny model.