

Approximate 2D-3D Shape Matching for Interactive Applications

Supplementary Material

9. Further Experimental Results

In Tab. 3, we show the effects of different discretisations of the contour. Furthermore, in Fig. A.1 we show qualitative results of all methods when user-defined landmarks are used. We also show qualitative results of shapes retrieved according to matching energies in Fig. A.2. Finally, we show qualitative results on a single FAUST class in Fig. A.3.

Mean Edge-Length of 2D Shape	AUC [34]	AUC Ours
$0.5 \vec{e}$	0.96	0.96
$0.75 \vec{e}$	0.97	0.97
$1.0 \vec{e}$	0.98	0.96
$1.25 \vec{e}$	0.97	0.96
$1.5 \vec{e}$	0.95	0.94

Table 3. We show respective AUC values on FAUST dataset of both our approach and the approach of Roetzer *et al.* [34] w.r.t. **different discretisations** of the 2D shape. Here, \vec{e} is the mean edge length of the 3D shape. Our approach performs best for contours with mean edge length equal to 75% of mean edge length of the 3D mesh.

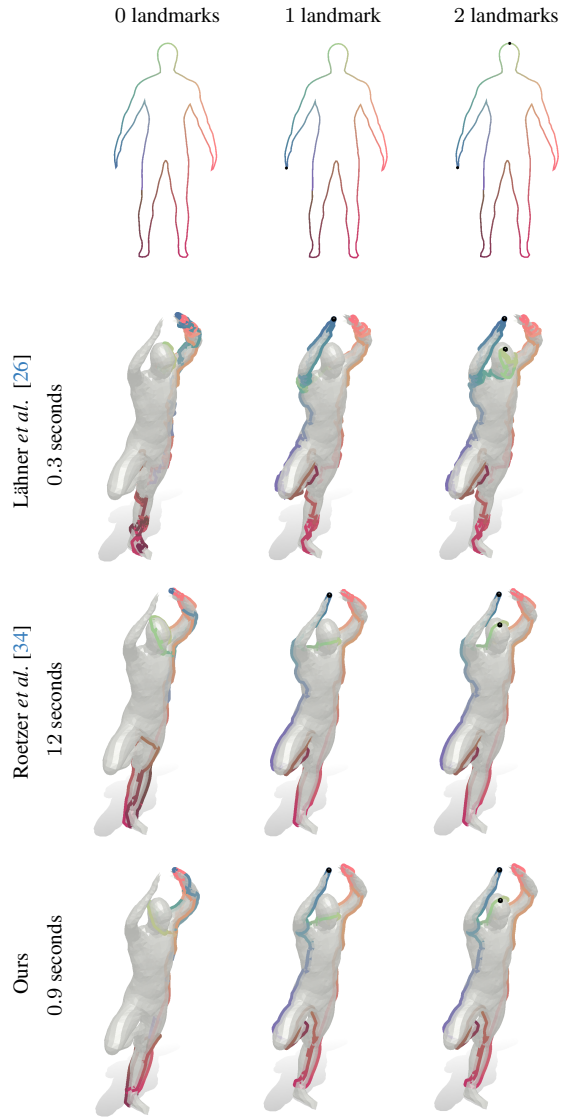


Figure A.1. We show matchings of 2D contours with 300 vertices and 3D meshes with 2100 vertices computed with zero, one and two user-selected **landmark correspondences** for the approaches of Löhner *et al.* [26], Roetzer *et al.* [34] and our approach. Landmarks are shown as black dots. We note that the reported runtimes refers to the matching using the landmarks. We can see that results computed with our approach and the approach of Roetzer *et al.* [34] are good when only using two landmarks. In contrast, the matchings computed by Löhner *et al.* [26] would require many more landmarks on the head, the left arm and the left leg to achieve similar quality.



Figure A.2. **Qualitative retrieval results.** In each row we show the five shapes with lowest energy when the respective 2D shapes in same row is matched to all 3D shapes in the dataset (energies ascend from left to right). We note that our approximation of the rigidity prior favours shapes which are in the same pose as the source shape.

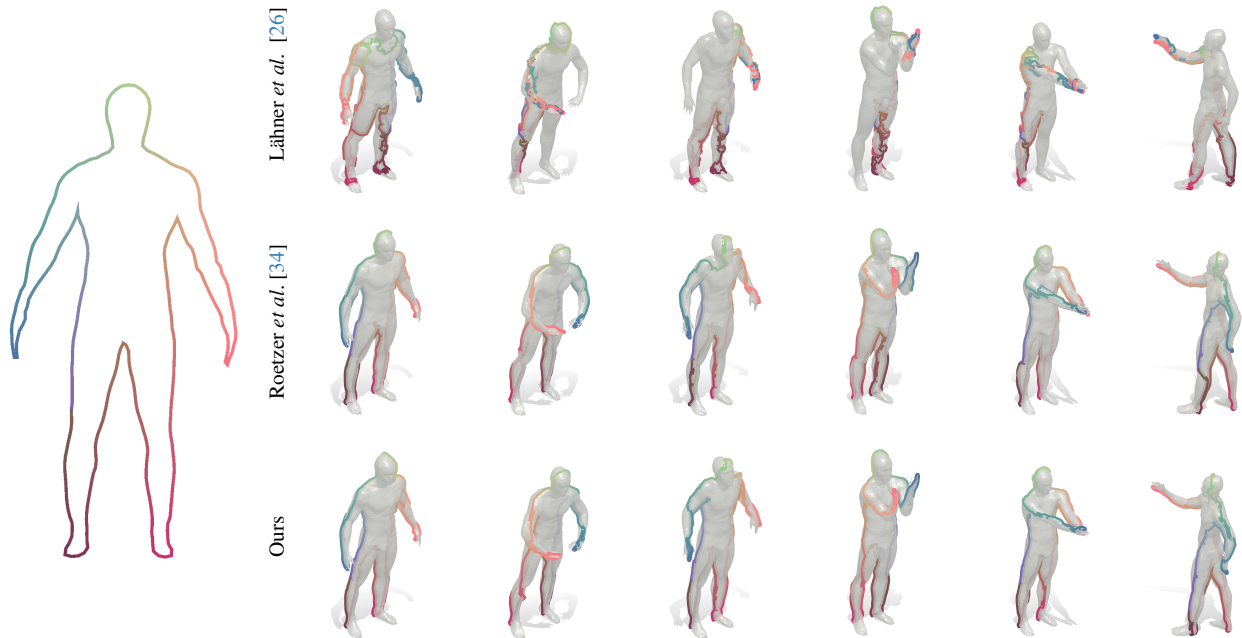


Figure A.3. We show additional **qualitative results** on one class of the FAUST dataset, i.e. one contour being matched to multiple 3D meshes corresponding to the same class in different poses. Our results are of similar quality as the ones computed with [34], whereas results computed with [26] are of poor quality and often suffer collapses to one side.