An Integer Linear Programming Approach to Geometrically Consistent Partial-Partial Shape Matching

Supplementary Material

9. Ablation Studies

In the following, we show ablation studies on the weighting factor λ, which weighs the matching cost against the overlap probabilities in (PP-ILP), and on the neighbourhood size N, which influences the size of the allowed matching set, see Eq. (4).

9.1. Weighting of Overlap Prediction

We analyse the mean IoU for different weighting factors λ between 0 and 1 for 10 random shape pairs for datasets CP2P, respectively PSMAL. In Table 3, we show that $\lambda = 0.3$, respectively $\lambda = 0.5$, yields the best results on CP2P, respectively PSMAL.

λ	0	0.1	0.3	0.5	1.0
CP2P24	0	72.01	**87.40**	86.53	84.65
PSMAL	0	53.17	82.03	**82.35**	80.02

Table 3. Ablation study of the mean IoU on **different weighting factors for the overlapping region** on 10 examples of the CP2P/PSMAL train dataset on a combined number of 600 faces for both shapes.

9.2. Neighbourhood Ring Size

We compare different neighbourhood ring sizes N on 10 random samples of the CP2P train set in terms of optimisation time and mean IoU in Table 4 for an upsampling step from 600 to 800 total triangles. We observe the best results with $N = 2$.

N	0	2	4	6
mIoU (↑)	83.65	**88.45**	**88.45**	87.05
Opt. Time (seconds) (↓)	**11.27**	141.58	340.03	351.31

Table 4. Ablation study of mIoU and optimisation time in seconds on **upsampling neighbourhood size** N: We observe the best combination of optimisation time and mIoU for $N = 2$.