

Neighbourhood-Insensitive Point Cloud Normal Estimation Network (Supplementary)

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1 ICP Iterations Using PCA

To find the best ICP performance with normals from PCA, we run a set of exhaustive experiments given different numbers of neighbours as input. This is similar to a neighbourhood parameters tuning process and our method can help applications such as ICP to avoid such parameter searching procedures.

Full PCA	s01	s02	s03	s04	s07	s08	s09	s10	s11	s13	s14	s15	s16	s19
nb3	15	71	25	21	15	10	10	19	9	33	F	13	7	F
nb4	14	31	12	16	16	12	11	16	9	35	F	14	7	F
nb5	15	41	15	F	20	11	11	19	9	36	73	14	7	F
nb6	18	49	15	19	F	10	10	16	9	34	27	17	7	F
nb7	15	F	18	19	15	13	9	14	9	38	21	19	7	38
nb8	15	52	13	23	20	13	10	24	9	37	64	16	7	F
nb9	14	41	16	18	16	13	9	20	9	85	22	20	7	F
nb10	14	F	14	19	15	41	17	21	9	42	34	18	7	24
nb15	14	83	15	19	14	12	12	20	9	33	24	15	7	12
nb20	18	45	14	19	14	13	14	18	9	55	17	F	7	21
nb25	14	65	12	17	F	F	10	F	9	37	35	16	7	26
nb30	17	F	20	18	16	F	15	17	9	F	63	16	7	17
nb40	14	F	18	18	F	F	13	16	9	F	28	16	8	F
nb50	25	F	29	17	F	F	10	18	9	F	30	22	8	24
Min iter.	14	31	12	16	14	10	9	14	9	33	17	13	7	12

Table 1: Exhaustive number of neighbours search for PCA to achieve the best point-to-plane ICP performance. We reported the minimum iteration numbers for each object in our ICP convergence study, after trying all number of neighbours.

2 Shape Names s1-s19

s1	s2	s3	s4	s5
galera100k	icosahedron100k	netsuke100k	Cup34100k	sphere100k
s6	s7	s8	s9	s10
cylinder100k	star_smooth100k	star_halfsmooth100k	star_sharp100k	Liberty100k
s11	s12	s13	s14	s15
boxunion2100k	pipe100k	pipe_curve100k	column100k	column_head100k
s16	s17	s18	s19	
Boxy_smooth100k	sphere_analytic100k	cylinder_analytic100k	sheet_analytic100k	

3 Attention Weight Visualisation

Here we present a high resolution version of the attention weight visualisation (Fig. 5 in the main paper).

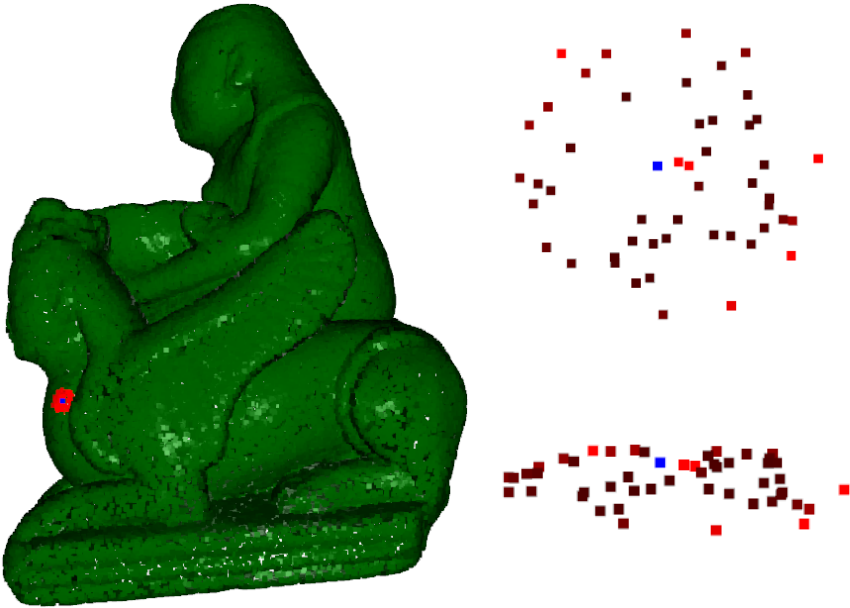


Figure 1: Patch A attention weight visualisation.

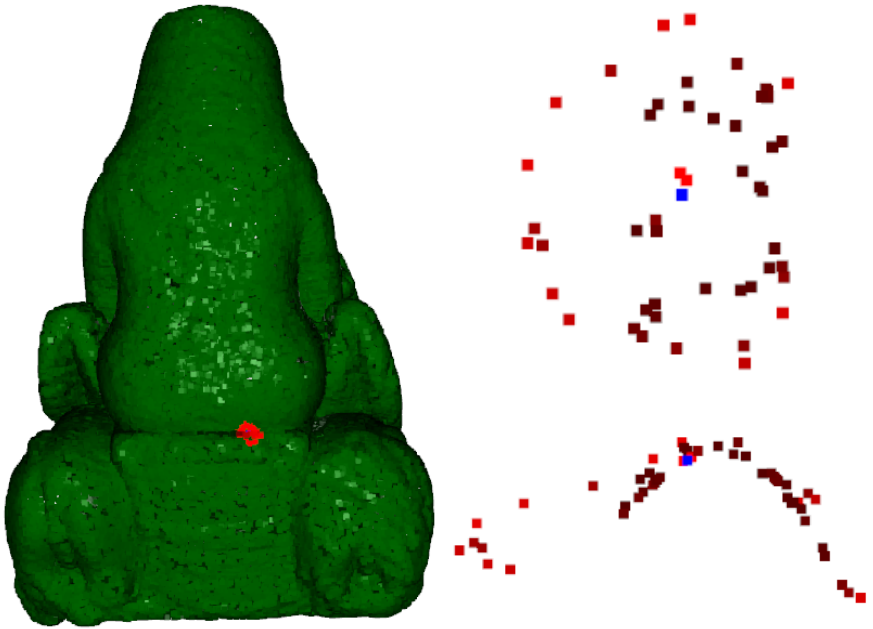


Figure 2: Patch B attention weight visualisation.

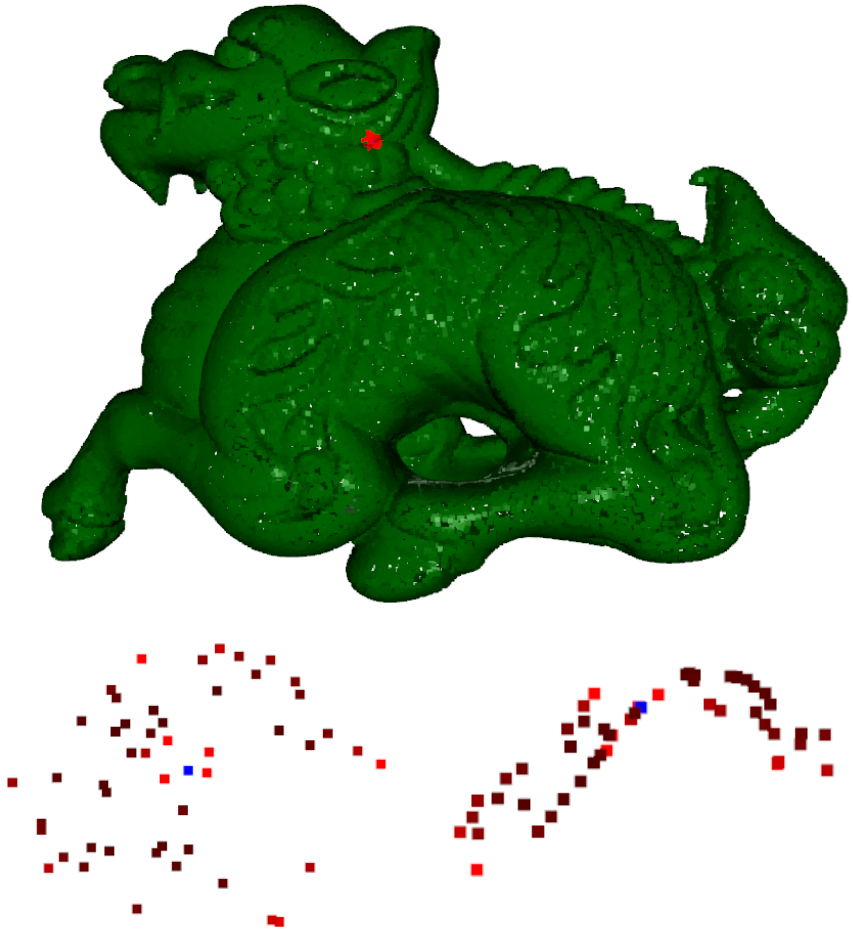


Figure 3: Patch C attention weight visualisation.

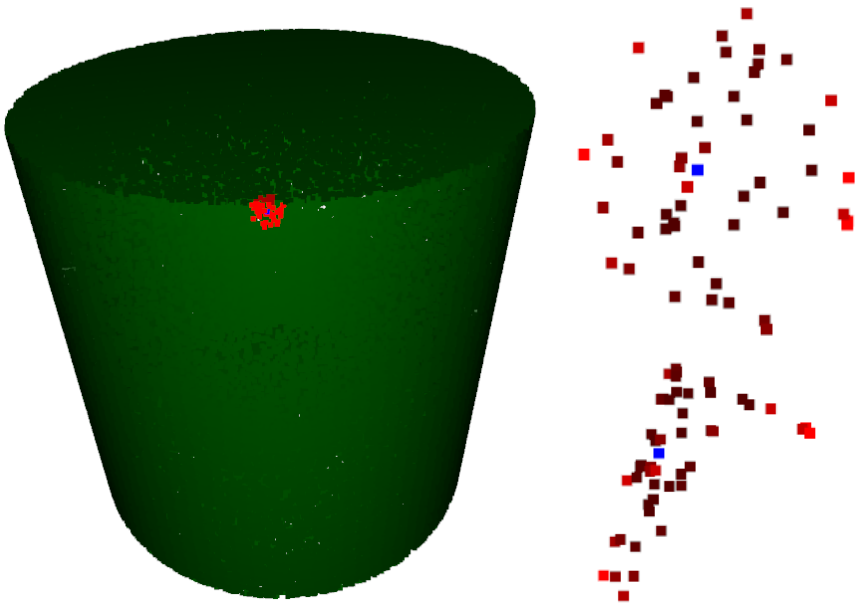


Figure 4: Patch D attention weight visualisation.