




Additional Material

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# Samples	3DMatch					3DLoMatch				
	5000	2500	1000	500	250	5000	2500	1000	500	250
<i>Feature Matching Recall (%)</i> ↑										
FCGF [CPK19]	96.9	96.9	96.2	95.9	94.5	73.3	73.4	71.0	68.8	64.5
D3Feat [BLZ*20]	94.7	95.1	94.3	93.8	92.3	63.9	64.6	63.0	62.1	59.6
SpinNet [AHY*21]	97.4	97.4	96.7	96.5	94.1	75.2	74.9	72.6	69.2	61.8
Predator [HGU*21]	96.2	96.2	96.6	96.0	96.0	73.7	74.2	75.0	74.8	73.5
CoFiNet [YLS*21]	97.4	97.4	97.2	97.2	97.3	78.6	78.8	79.2	78.9	79.2
YOHO [WLDW22]	97.8	97.8	97.4	97.6	96.4	77.8	77.8	76.3	73.9	67.3
RIGA [YHQ*24]	98.2	98.2	98.2	98.0	98.1	84.5	84.6	84.5	84.2	84.4
GeoTrans [QYW*22]	97.8	97.9	98.1	97.7	97.3	85.8	85.7	86.5	86.6	86.1
RoITr [YQH*23]	98.2	98.1	98.1	98.1	98.1	89.4	89.2	89.1	89.1	89.0
GETr (Ours)	98.2	98.2	98.3	98.3	98.2	89.6	89.6	89.4	89.4	89.0
<i>Inlier Ratio (%)</i> ↑										
FCGF [CPK19]	49.3	47.1	42.5	37.4	30.6	17.3	16.4	14.6	12.5	10.2
D3Feat [BLZ*20]	37.7	37.7	37.0	36.0	34.6	12.1	12.1	11.9	11.7	11.2
SpinNet [AHY*21]	48.7	46.0	40.6	35.1	29.0	25.7	23.9	20.8	17.9	15.6
Predator [HGU*21]	52.8	53.4	52.5	50.0	45.6	22.4	23.5	23.0	23.2	21.6
CoFiNet [YLS*21]	46.8	48.2	49.0	49.3	49.3	21.5	22.8	23.6	23.8	23.8
YOHO [WLDW22]	64.1	60.4	53.5	46.3	36.9	23.2	23.2	19.2	15.7	12.1
RIGA [YHQ*24]	68.5	69.8	70.7	71.0	71.2	32.1	33.5	34.3	34.7	35.0
GeoTrans [QYW*22]	68.2	72.5	73.3	79.5	82.3	40.0	40.3	42.7	49.5	54.1
RoITr [YQH*23]	82.3	82.3	82.6	82.6	82.6	53.2	54.9	55.1	55.2	55.3
GETr (Ours)	77.5	82.4	83.3	84.0	85.4	47.5	51.5	54.8	55.5	57.4
<i>Registration Recall (%)</i> ↑										
FCGF [CPK19]	90.3	91.2	90.4	87.8	83.3	58.6	58.7	54.7	44.8	34.7
D3Feat [BLZ*20]	91.3	90.3	88.4	85.2	80.8	55.3	53.5	47.9	43.6	33.5
SpinNet [AHY*21]	93.2	93.2	91.1	87.4	77.0	61.8	59.1	53.1	44.1	30.7
Predator [HGU*21]	92.0	92.8	92.0	92.2	89.5	58.6	59.5	60.4	58.6	55.8
CoFiNet [YLS*21]	92.0	91.4	91.0	90.3	89.6	62.5	60.9	60.9	59.9	56.5
YOHO [WLDW22]	92.5	92.3	92.4	90.2	87.4	66.8	67.1	64.5	58.2	44.8
RIGA [YHQ*24]	93.0	93.0	92.6	91.8	92.3	66.9	67.6	67.0	66.5	66.2
GeoTrans [QYW*22]	92.0	91.9	91.8	91.5	91.4	71.8	72.0	72.0	71.6	70.9
RoITr [YQH*23]	94.7	94.9	94.4	94.4	94.2	77.2	76.5	76.6	76.5	76.0
GETr (Ours)	94.8	94.5	94.6	94.4	94.1	77.1	76.8	76.7	76.7	76.4

Table 1: Evaluation results on rotated 3DMatch & 3DLoMatch with different number of samples.

1. Additional Experiments

In this section, we will present more results of experiments. As shown in Tab. 1, we further evaluate the performance of our method on rotated 3DMatch and 3DLoMatch benchmarks with varying number of samples. Our method shows outstanding and comparable results.

We also demonstrate our results with other methods w/o RANSAC through RRE and RTE these two metrics. As shown in Tab. 2, our method has better outcomes on 3DLoMatch dataset, which indicates our method has better performance for low overlap.

We present the scene-wise registration results on both 3DMatch and 3DLoMatch in Tab. 3. We adopt *Registration Recall*, *Relative Rotation Error* and *Relative Translation Error* three metrics. It can be found that our method achieves excellent performance on most scenes, especially on 3DLoMatch dataset. We also present the scene-

Model	Estimator	3DMatch		3DLoMatch	
		RTE (cm)	RRE (°)	RTE (cm)	RRE (°)
Predator [HGU*21]	RANSAC-50k	6.4	2.029	9.3	3.048
CoFiNet [YLS*21]	RANSAC-50k	6.4	2.002	9.0	3.271
PCR-CG [ZYH*22]	RANSAC-50k	6.1	1.993	8.7	3.002
GeoTrans [QYW*22]	RANSAC-free	6.1	1.772	8.8	2.849
REGTR [YL22]	RANSAC-free	4.9	1.567	7.1	2.827
PEAL [YRZ*23]	RANSAC-free	6.2	1.748	8.7	2.788
GETr (Ours)	RANSAC-free	5.1	1.616	7.1	2.372

Table 2: Evaluation results w/o RANSAC on 3DMatch & 3DLoMatch.

	3DMatch			3DLoMatch		
	RR (%)	RRE (°)	RTE (cm)	RR (%)	RRE (°)	RTE (cm)
Kitchen	99.4	1.835	4.3	90.5	2.415	6.2
Home_1	98.9	1.488	4.7	75.2	2.449	7.2
Home_2	86.3	1.745	5.5	77.9	2.723	6.7
Hotel_1	99.0	1.415	4.8	94.9	2.171	7.4
Hotel_2	95.7	1.523	4.6	78.0	2.441	7.5
Hotel_3	92.4	1.337	4.3	65.8	2.484	5.2
Study	93.5	1.925	6.2	60.7	2.893	10.4
Lab	92.8	1.455	5.9	73.4	2.631	8.0
Mean	94.8	1.590	5.0	77.1	2.526	7.3

Table 4: Scene-wise results on rotated 3DMatch & 3DLoMatch.

wise registration results on rotated 3DMatch & 3DLoMatch datasets, which can be seen in Tab. 4.

Finally, we show more registration results in Figs.1-3.

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Model	3DMatch									3DLoMatch								
	Kitchen	Home_1	Home_2	Hotel_1	Hotel_2	Hotel_3	Study	Lab	Mean	Kitchen	Home_1	Home_2	Hotel_1	Hotel_2	Hotel_3	Study	Lab	Mean
Registration Recall (%) \uparrow																		
FCGF [CPK19]	98.0	94.3	68.6	96.7	91.0	84.6	76.1	71.1	85.1	60.8	42.2	53.6	53.1	38.0	26.8	16.1	30.4	40.1
D3Feat [BLZ*20]	96.0	86.8	67.3	90.7	88.5	80.8	78.2	64.4	81.6	49.7	37.2	47.3	47.8	36.5	31.7	15.7	31.9	37.2
RI-GCN [KPH20]	90.2	79.2	58.5	86.3	74.4	76.9	70.9	62.2	74.9	56.6	32.3	42.8	52.6	27.0	51.2	25.0	34.8	41.0
Predator [HGU*21]	97.6	97.2	74.8	98.9	96.2	88.5	85.9	73.3	89.0	71.5	58.2	60.8	77.5	64.2	61.0	45.8	39.1	59.8
CoFiNet [YLS*21]	96.4	99.1	73.6	95.6	91.0	84.6	<u>89.7</u>	84.4	89.3	76.7	66.7	64.0	81.3	65.0	63.4	53.4	69.6	67.5
RIGA [YHQ*24]	97.8	93.4	76.7	98.4	<u>93.6</u>	84.6	85.9	84.4	89.3	77.8	60.6	63.5	79.4	62.0	63.4	48.7	65.2	65.1
PointDSC [BLZ*21]	98.8	97.4	<u>82.2</u>	98.7	<u>92.3</u>	92.6	89.0	80.5	91.4	-	-	-	-	-	-	-	-	-
GeoTrans [QYW*22]	<u>98.9</u>	97.2	81.1	98.9	89.7	88.5	88.9	88.9	91.5	<u>85.9</u>	<u>73.5</u>	<u>72.5</u>	89.5	<u>73.2</u>	<u>66.7</u>	55.3	75.7	<u>74.0</u>
GETr (Ours)	99.1	<u>98.2</u>	83.6	98.6	93.2	<u>89.3</u>	90.6	<u>88.5</u>	92.6	88.7	79.5	75.3	93.7	79.3	69.9	<u>52.9</u>	<u>74.6</u>	76.7
Relative Rotation Error ($^{\circ}$) \downarrow																		
FCGF [CPK19]	<u>1.767</u>	1.849	2.210	1.867	1.667	2.417	2.024	1.792	1.949	2.904	3.229	3.277	2.768	2.801	2.822	3.372	4.006	3.147
D3Feat [BLZ*20]	2.016	2.029	2.425	1.990	1.967	2.400	2.346	2.115	2.161	3.226	3.492	3.373	3.330	3.165	2.972	3.708	3.619	3.361
RI-GCN [KPH20]	2.275	1.877	2.489	2.379	2.574	2.515	3.163	2.343	2.452	3.921	3.660	4.165	4.159	4.690	4.136	4.568	3.510	4.101
Predator [HGU*21]	1.861	1.806	2.473	2.045	1.600	2.458	2.067	1.926	2.029	3.079	2.637	3.220	2.694	2.907	3.390	3.046	3.412	3.048
CoFiNet [YLS*21]	1.910	1.835	2.316	1.767	1.753	<u>1.639</u>	2.527	2.345	2.011	3.213	3.119	3.711	2.842	2.897	3.194	4.126	3.138	3.280
RIGA [YHQ*24]	1.789	1.538	1.981	1.677	1.598	1.935	<u>1.833</u>	2.033	1.798	2.987	2.722	3.313	2.743	2.956	<u>2.439</u>	3.836	3.135	3.016
PointDSC [BLZ*21]	1.670	1.870	3.360	1.880	1.980	2.000	2.290	1.910	2.120	-	-	-	-	-	-	-	-	-
GeoTrans [QYW*22]	1.797	1.353	<u>1.797</u>	<u>1.528</u>	1.328	1.571	1.952	<u>1.678</u>	<u>1.625</u>	2.356	<u>2.305</u>	2.541	<u>2.455</u>	<u>2.490</u>	2.504	3.010	<u>2.716</u>	<u>2.547</u>
GETr (Ours)	1.774	<u>1.446</u>	1.776	1.513	<u>1.447</u>	1.682	1.759	1.528	1.616	<u>2.417</u>	2.146	<u>2.570</u>	2.340	2.422	2.376	2.535	2.170	2.372
Relative Translation Error (cm) \downarrow																		
FCGF [CPK19]	5.3	5.6	7.1	6.2	6.1	5.5	8.2	9.0	6.6	8.4	9.7	7.6	10.1	8.4	7.7	14.4	14.0	10.0
D3Feat [BLZ*20]	5.3	6.5	8.0	6.4	7.8	4.9	8.3	6.4	6.7	8.8	10.1	8.6	9.9	9.2	7.5	14.6	13.5	10.3
RI-GCN [KPH20]	5.2	6.3	7.9	8.0	7.6	5.6	11.7	6.4	7.3	9.0	10.0	9.8	12.9	10.9	9.2	14.6	10.1	10.8
Predator [HGU*21]	4.8	5.5	7.0	7.3	6.0	6.5	8.0	6.3	6.4	8.1	8.0	8.4	9.9	9.6	7.7	<u>10.1</u>	13.0	9.3
CoFiNet [YLS*21]	4.7	5.9	6.3	6.3	5.8	<u>4.4</u>	8.7	7.5	6.2	8.0	7.8	7.8	9.9	8.6	7.7	13.1	12.3	9.4
RIGA [YHQ*24]	4.4	4.8	5.6	6.0	5.9	4.0	7.1	7.1	5.6	7.8	8.2	8.5	9.4	8.2	5.9	11.6	11.4	8.9
PointDSC [BLZ*21]	5.1	6.5	7.5	6.0	5.7	5.9	9.2	8.4	6.8	-	-	-	-	-	-	-	-	-
GeoTrans [QYW*22]	4.2	4.6	5.9	<u>5.5</u>	<u>4.6</u>	5.0	<u>7.3</u>	<u>5.3</u>	<u>5.3</u>	6.2	7.0	7.1	<u>8.0</u>	<u>7.5</u>	4.9	10.7	<u>8.3</u>	<u>7.4</u>
GETr (Ours)	4.2	4.4	<u>5.7</u>	5.2	<u>4.8</u>	4.5	6.5	5.1	5.1	<u>6.4</u>	<u>7.3</u>	7.1	7.9	7.1	4.9	9.1	7.3	7.1

Table 3: Scene-wise results on 3DMatch & 3DLoMatch.

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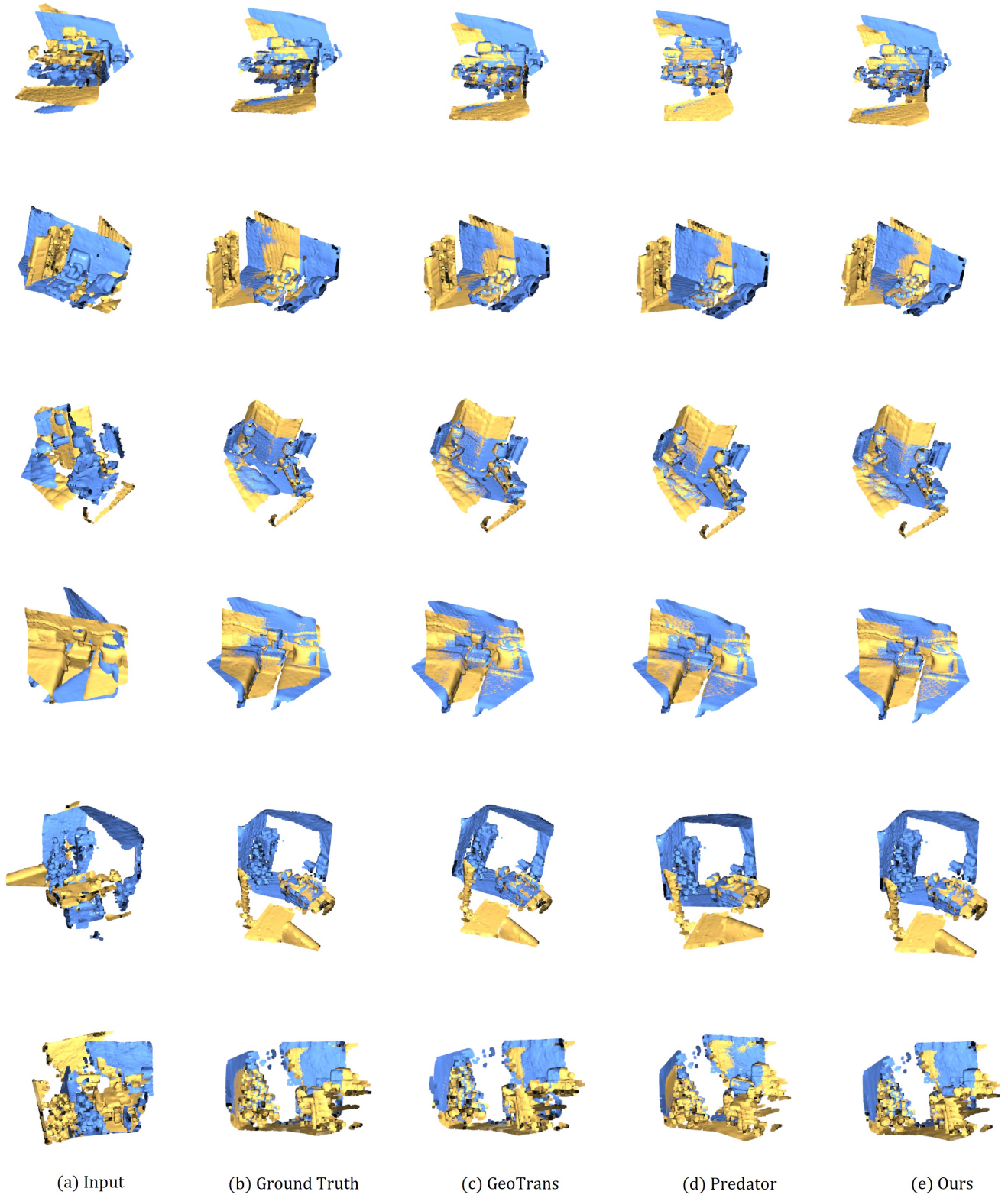


Figure 1: More registration results on 3DMatch and 3DLoMatch.

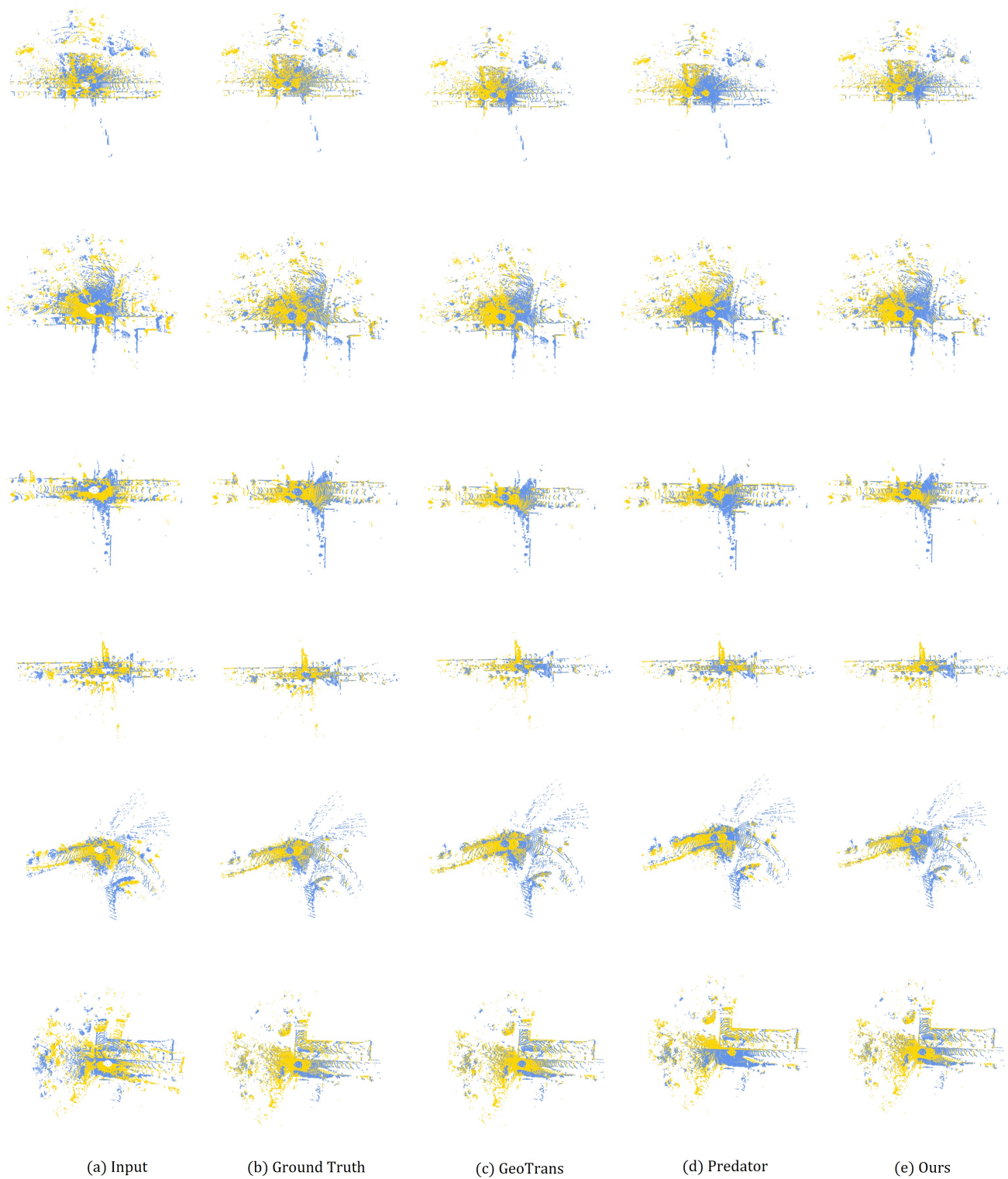


Figure 2: More registration results on KITTI.

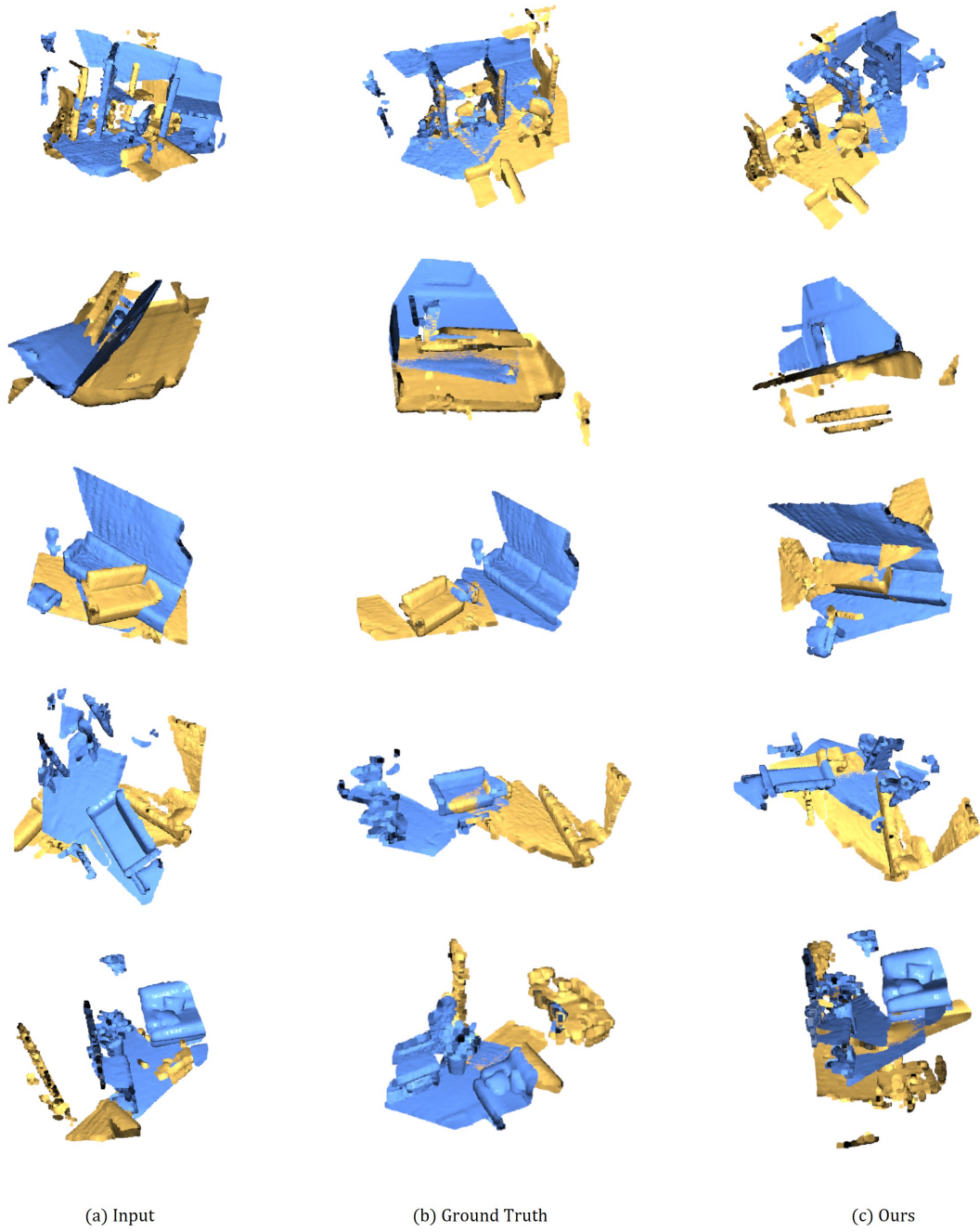


Figure 3: Some failed cases on 3DMatch and 3DLoMatch.