

Feature Extractor	EPE	Acc Strict	Acc Relax	Outliers
Ours	0.0046	98.69%	98.77%	1.31%
Pointnet++	0.0583	57.57%	81.98%	59.65%

Table 1: Example table format.

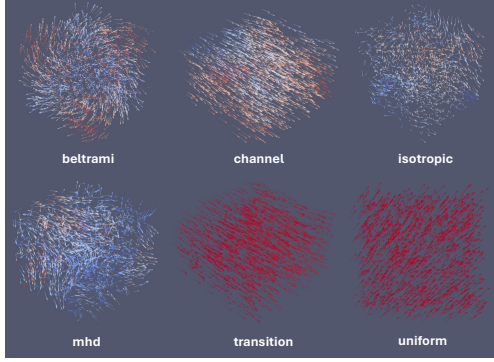


Figure 1: **Visualizations of different flow cases.** The warmer color indicates a higher flow speed.

Seed	Train Size	EPE	Acc Strict	Acc Relax	Outliers
42	100%	0.00460	98.69%	98.77%	1.31%
	10%	0.00640	98.27%	98.37%	1.74%
	1%	0.00850	97.61%	97.76%	2.40%
0	100%	0.00470	98.72%	98.77%	1.28%
	10%	0.00530	98.56%	98.63%	1.45%
	1%	0.00810	97.92%	98.01%	2.09%
1	100%	0.00490	98.66%	98.72%	1.35%
	10%	0.00530	98.56%	98.63%	1.45%
	1%	0.00760	98.05%	98.14%	1.97%
2	100%	0.00430	98.79%	98.84%	1.22%
	10%	0.00600	98.36%	98.43%	1.66%
	1%	0.00780	97.94%	98.03%	2.08%
3	100%	0.00450	98.76%	98.81%	1.25%
	10%	0.00550	98.53%	98.59%	1.49%
	1%	0.00720	98.07%	98.16%	1.95%
4	100%	0.00440	98.77%	98.82%	1.24%
	10%	0.00580	98.44%	98.51%	1.57%
	1%	0.00790	97.95%	98.04%	2.07%

Table 2: Various runs with different seeds.

Train Size	EPE	Acc Strict	Acc Relax	Outliers
100%	0.0046±0.0002	98.73±0.05 %	98.79±0.04 %	1.28±0.04 %
10%	0.0057±0.0004	98.45±0.11 %	98.53±0.10 %	1.56±0.11 %
1%	0.0079±0.0004	97.92±0.15 %	98.02±0.13 %	2.09±0.15 %

Table 3: Mean & Std of results on limited data across various runs.

beltrami	EPE	Acc Strict	Acc Relax	Outliers
00	0.0101	97.58%	97.66%	2.44%
01	0.036	86.28%	97.53%	71.84%
10	0.0118	96.95%	97.55%	5.11%
isotropic	EPE	Acc Strict	Acc Relax	Outliers
00	0.0193	95.01%	95.22%	5.02%
01	0.0732	36.57%	85.65%	91.85%
10	0.0215	94.35%	95.18%	8.36%
transition	EPE	Acc Strict	Acc Relax	Outliers
00	0.0066	97.55%	97.87%	2.42%
01	0.0061	99.44%	99.70%	1.57%
10	0.0026	99.35%	99.39%	0.65%

Table 4: Ablation study on the effects of using zero-divergence and smooth loss during test-time optimization. "00" stands for our DVE without smooth loss or zero-divergence loss. "01" stands for DVE with smooth loss, and "10" stands for DVE with zero-divergence loss.

Train Size	EPE	Acc Strict	Acc Relax	Outliers
100%	0.00460	98.69%	98.77%	1.31%
10%	0.00640	98.27%	98.37%	1.74%
1%	0.00850	97.61%	97.76%	2.40%

Table 5: Correct results for our method.

Data Size	Epoch Num	EPE	Acc Strict	Acc Relax	Outliers
100%	300	0.0044	98.76%	98.80%	1.25%
100%	100	0.0046	98.69%	98.77%	1.31%
10%	300	0.0056	98.43%	98.49%	1.59%
10%	100	0.0064	98.27%	98.37%	1.74%
1%	300	0.0085	97.61%	97.76%	2.40%
1%	100	0.0289	90.28%	91.13%	9.80%

Table 6: Training with the same number of weight updates across dataset sizes

Methods	T _{test}	EPE	Acc Strict	Acc Relax	Outliers
Ours	0.218s	0.0046	98.69%	98.77%	1.31%
GotFlow3D	0.758s	0.0049	93.15%	96.38%	3.62%
GotFlow3D w/ DVE	2.260s	0.0024	99.12%	99.13%	0.86%
FLOT	0.030s	0.0587	24.99%	45.59%	54.41%
FLOT w/ DVE	0.520s	0.0300	90.38%	91.15%	10.00%

Table 7: Comparison with other methods with DVE

	EPE	Acc Strict	Acc Relax	Outliers
missing in source frame	0.0069	97.87%	97.99%	2.15%
missing in target frame	0.0234	93.53%	93.73%	6.48%

Table 8: Results for missing particles from frames

neighbor	num	EPE	Acc Strict	Acc Relax	Outliers
2		0.0085	97.61%	97.76%	2.40%
4		0.0071	98.12%	98.21%	1.89%
8		0.0086	97.72%	97.83%	2.31%
16		0.0086	97.77%	97.88%	2.25%
32		0.0080	97.91%	98.01%	2.11%

Table 9: Different neighborhood sizes when training on 1% of the data.

method	MAE
KNN	70.3603
ours	1.1294

Table 10: MAE(mean absolute error) for the zero-divergence loss of our method and the KNN method

epoch	EPE	Acc Strict	Acc Relax	Outlier
40	0.0049	93.15%	96.38%	3.62%
100	0.0069	91.82%	95.21%	4.79%

Table 11: GotFlow3D training results with same epochs as ours on full data.