SSeg: Active Sparse Point-Label Augmentation for Semantic Segmentation

Supplementary Material

Table 6. **Per-class performance (SSeg, 25 active points).** Detailed mPA and mIoU breakdown for SkyScapes (left) and UCSD Mosaics (right). Data is split into multiple columns for compactness. Note that while UCSD Mosaics results are stable, SkyScapes shows high variation between classes. This is because thin objects (e.g., road lines) are very difficult to capture with sparse point-labels.

(a) SkyScapes

C	mPA	mIoU	C	mPA	mIoU
0	32.46	23.68	11	67.06	52.26
1	71.78	54.04	12	6.04	3.92
2	61.50	39.82	13	7.82	7.48
3	42.70	28.19	14	4.44	2.81
4	36.03	21.68	15	11.32	8.30
5	82.43	63.44	16	4.04	3.95
6	22.44	11.95	17	10.38	7.44
7	36.86	23.36	18	56.88	39.97
8	8.43	4.29	19	45.83	31.36
9	3.94	3.83	20	65.75	50.55
10	3.97	2.74			

(b) UCSD Mosaics

C	mPA	mIoU	C	mPA	mIoU	C	mPA	mIoU
0	64.85	56.95	12	78.95	63.37	24	82.97	67.42
1	82.82	59.67	13	98.64	85.37	25	76.04	56.42
2	91.14	80.07	14	87.97	73.82	26	75.14	58.71
3	95.85	80.15	15	82.75	65.86	27	86.11	73.29
4	69.34	45.81	16	65.29	41.79	28	91.40	75.53
5	85.58	71.40	17	85.09	69.03	29	48.72	28.86
6	60.86	39.68	18	69.81	45.33	30	92.73	82.75
7	76.82	58.98	19	77.41	62.07	31	74.14	60.03
8	74.15	52.96	20	84.89	71.19	32	71.45	54.74
9	66.02	46.44	21	61.47	35.87	33	67.69	46.98
10	77.43	61.49	22	60.09	43.17	Bg	75.80	65.12
11	70.94	40.52	23	58.49	38.96			

Table 7. **Quantitative results from Experiment 1 (Numerical).** We report the masked-mIoU values corresponding to the plot in Figure 1 of the main paper.

Method	Label Style	masked-mIoU			
		5	10	25	300
PLAS - *Ens.* [34]	Rand.	25.91	35.56	50.46	85.45
D+NN [35]	Rand.	32.09	42.79	58.04	81.15
SparseUWSeg (Ours)	Rand.*	35.27	42.73	62.90	86.04
PLAS - *Ens.* [34]	Grid	30.00	40.34	59.82	<u>89.38</u>
D+NN [35]	Grid	35.74	50.58	64.40	85.77
SparseUWSeg (Ours)	Grid	<u>38.44</u>	51.70	67.30	86.31
D+NN [35]	Active	**52.60**	**59.48**	<u>67.97</u>	85.00
SparseUWSeg (Ours)	Active	38.41	<u>53.76</u>	**70.40**	**93.15**

* Random locations differ as baseline coordinates are unavailable.

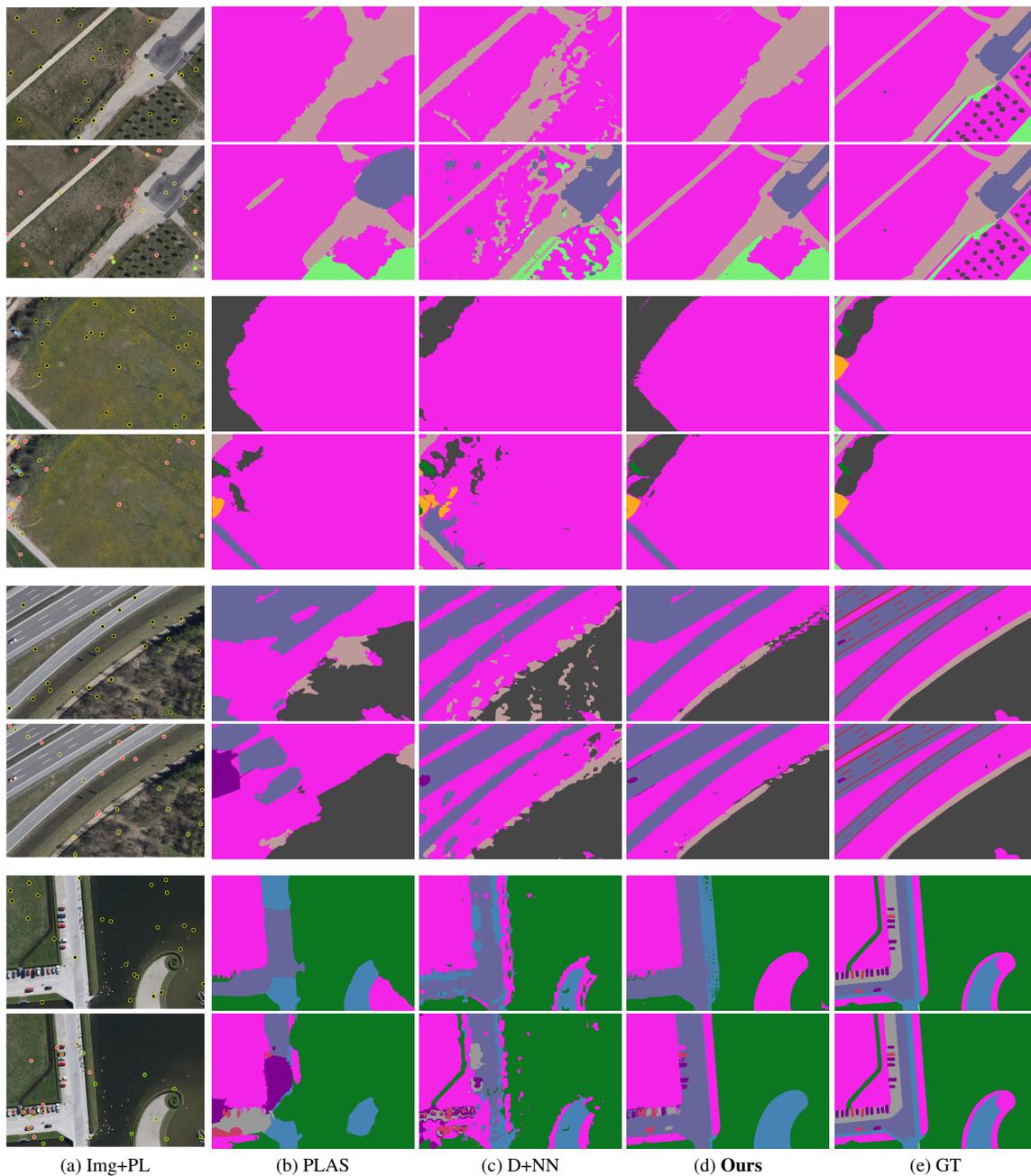| (a) Img+PL | (b) PLAS | (c) D+NN | (d) **Ours** | (e) GT |

Figure 5. Additioinal qualitative results. Label augmentation using PLAS, D+NN and SSeg on SkyScapes. Each pair of rows shows the final segmentation of the same image, with random sampling on top and our DynamicPoints sampling at the bottom. In each block, from left to right: (a) Input image with point-labels, (b) PLAS, (c) D+NN, (d) SSeg (Ours), (e) Ground Truth. Our DynamicPoints sampling leads to a better point placement to support effective label augmentation.