Efficient Facade Segmentation using Auto-Context
Supplementary Material

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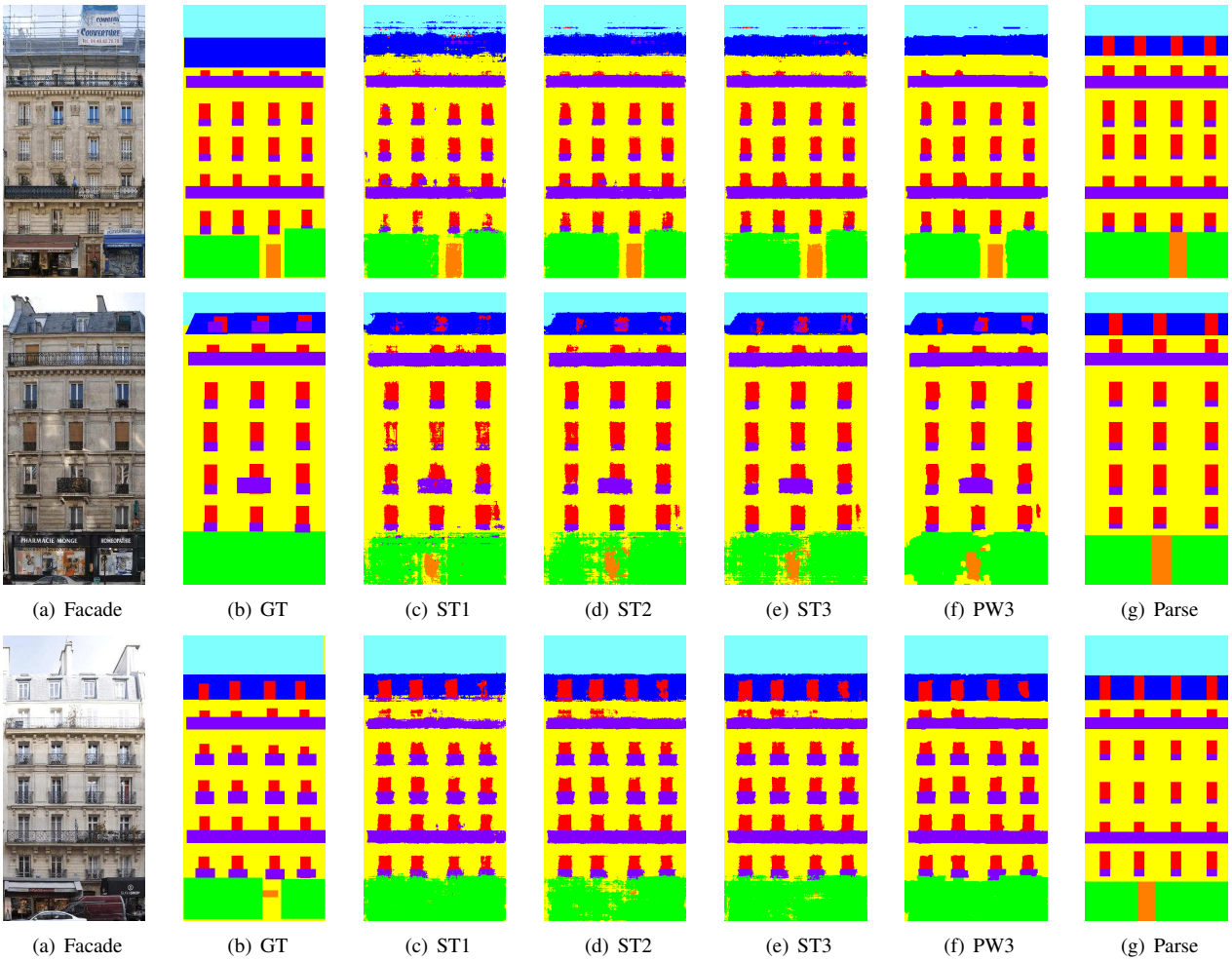
We present more qualitative (Figures 1 to 6) and quantitative (Table 1 and Table 2) facade segmentation results. The images have been selected based on the absolute overall pixel-accuracy of ST3 and include images with the (i) highest, (ii) average, and (iii) lowest performance.



(a) Facade (b) GT (c) ST1 (d) ST2 (e) ST3 (f) PW3 (g) Parse

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Figure 1. (a) Sample facade images from ECP dataset, (b) ground truth segmentation, (c,d,e) result of various classification stages (ST1, ST2, ST3) of the auto-context method, (f) Potts model using ST3 as unaries, and (g) the result obtained by applying reinforcement learning [7] using the output of ST3.

*The first two authors contribute equally to this work.

(a) CMP Dataset

Class		**Auto Context**			**AC + Potts Model**		
	[8]	**ST1**	**ST2**	**ST3**	**PW1**	**PW2**	**PW3**
Background	58	67.1	71.8	**72.6**	68.0	**72.6**	73.1
Facade	73	74.6	75.3	75.2	**80.5**	79.9	79.3
Window	61	71.6	76.1	77.0	74.1	77.4	**78.1**
Door	**54**	37.9	45.5	47.0	39.6	46.4	48.7
Cornice	41	39.1	47.5	**49.6**	40.0	48.3	**50.1**
Sill	27	21.1	32.8	**36.2**	16.9	30.3	34.6
Balcony	46	31.6	44.1	46.7	31.6	45.2	**48.1**
Blind	**48**	22.7	35.8	40.1	19.5	34.7	39.9
Deco	**24**	10.4	13	13.8	6.1	10.0	11.4
Molding	54	63.2	65.4	66.5	64.2	66.0	**67.2**
Pillar	**25**	5.71	11.2	13.6	1.33	7.72	9.78
Shop	**59**	40.9	45.6	45.6	42.8	46.7	46.8
Average	47.5	40.50	47.00	**48.65**	40.38	47.1	**48.92**
Overall	60.3	61.83	65.47	66.24	64.46	67.48	**68.08**
IoU	-	29.26	34.46	35.86	30.67	36.02	**37.47**

(b) Graz Dataset

Class	**Auto Context (AC)**			**AC + Potts Model**			
	ST1	**ST2**	**ST3**	**PW1**	**PW2**	**PW3**	**[6]**
Door	57.3	62.4	**62.7**	57.3	**62.8**	**63**	41
Window	78.2	81.2	**81.5**	77.8	80.6	80.9	60
Wall	94.9	94.7	94.9	**95.8**	**95.6**	**95.8**	84
Sky	87.4	**91.2**	**90.5**	87.7	**91.4**	**90.6**	**91**
Average	79.47	82.40	82.42	79.65	**82.61**	**82.56**	69
Overall	90.18	91.02	91.16	90.78	**91.53**	**91.68**	78
IoU	71.25	73.31	73.25	72.49	**74.45**	**74.39**	58

(c) labelMeFacades Dataset

Class	**[2]**	**[5]**	**Auto Context(AC)**			**AC + Potts Model**		
			ST1	**ST2**	**ST3**	**PW1**	**PW2**	**PW3**
Building	-	-	87.7	88.1	88.2	**92.7**	91.8	92.1
Car	-	-	47.1	53.6	54.8	51.1	57.0	**58.2**
Door	-	-	**6.52**	6.03	5.12	2.61	3.22	1.71
Pavement	-	-	24	**25.3**	**24.6**	22.0	24.2	23.3
Road	-	-	80.3	82.1	84.5	85.3	85.1	**87.6**
Sky	-	-	86.2	87.2	87.4	88.3	**88.6**	**88.9**
Vegetation	-	-	53.3	**57.5**	**57.6**	53.4	**58.1**	**57.9**
Window	-	-	20.3	22.6	**25.4**	13.0	16.9	19.5
Various	-	-	19.9	**20.6**	**21.0**	11.6	12.2	12.1
Average	**56.61**	-	47.26	49.22	49.84	46.68	48.56	49.04
Overall	67.33	71.28	71.52	72.9	73.46	74.1	74.62	**75.23**
IoU	-	35.96	37.01	38.69	39.36	37.74	38.96	**39.57**

Table 1. Segmentation results of various methods on CMP, Graz and labelmeFacades datasets. ST1, ST2, and ST3 correspond to the classification stages in the auto-context method. PW1, PW2, and PW3 refer to a Potts model using ST1, ST2, and ST3, respectively, as unaries. Published results are shown for comparisons. The method of [6] parses the image into a lattice representation and is not trying to maximize pixel accuracy results.

(a) eTRIMS Dataset

Class				**Auto Context (AC)**			**AC + Potts Model**		
	[4]	**[1]**	**[3]**	**ST1**	**ST2**	**ST3**	**PW1**	**PW2**	**PW3**
Building	91	91	84	90.3	90.5	90.9	**92.7**	**92.5**	**92.5**
Car	69	70	51	63.3	74.8	72.4	69.4	**79.1**	76.6
Door	18	18	**73**	62.7	62.3	63.6	66.0	63.6	65.3
Pavement	33	33	55	43.0	46.5	47.1	43.1	**48.6**	**48.8**
Road	55	57	81	78.2	82.3	80.3	80.9	**84.7**	82.1
Sky	93	97	**99**	97.6	**98.5**	**98.6**	98.2	**98.8**	**98.9**
Vegetation	89	90	92	91.1	92.1	92.3	92.4	**92.8**	**92.9**
Window	**74**	71	78	65.9	67.1	68.4	65.6	66.5	68.2
Average	65.3	65.9	66.4	74.01	76.78	76.7	76.04	**78.32**	78.14
Overall	83.16	83.84	83.40	84.68	85.95	86.12	86.39	**87.29**	**87.29**
IoU	-	-	-	58.7	61.26	61.48	61.49	63.39	**63.54**

Table 2. Segmentation results of various methods on eTRIMS dataset. ST1, ST2, and ST3 correspond to the classification stages in the auto-context method. PW1, PW2, and PW3 refer to a Potts model using ST1, ST2, and ST3, respectively, as unaries. Published results are shown for comparisons.

References

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Figure 2. Qualitative results on ECP dataset images along with overall pixel accuracy (Stage-3 results).

Figure 3. Qualitative results on Graz dataset images along with overall pixel accuracy (Stage-3 Results).

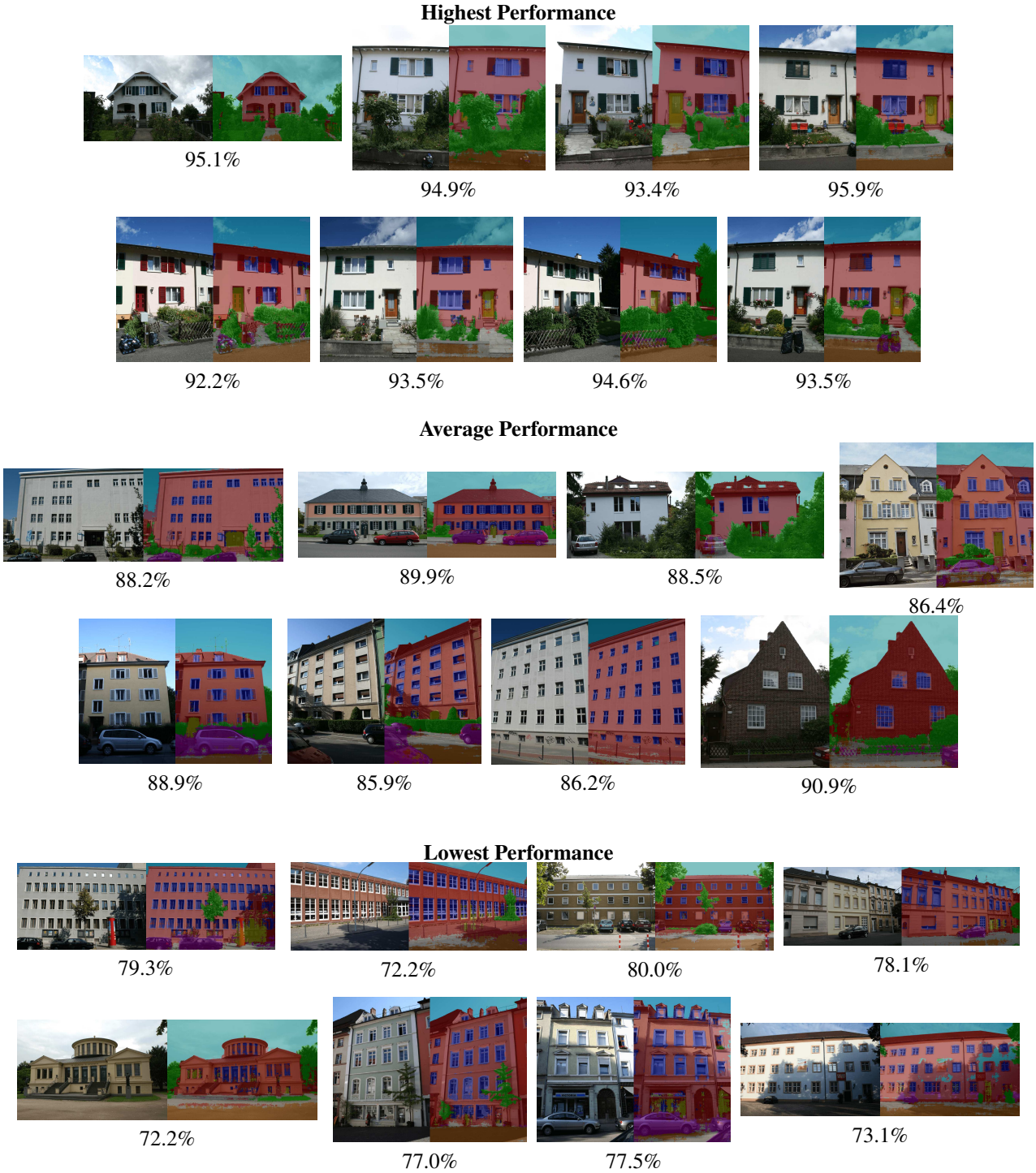

Figure 4. Qualitative results on eTRIMS dataset images along with overall pixel accuracy (Stage-3 results).

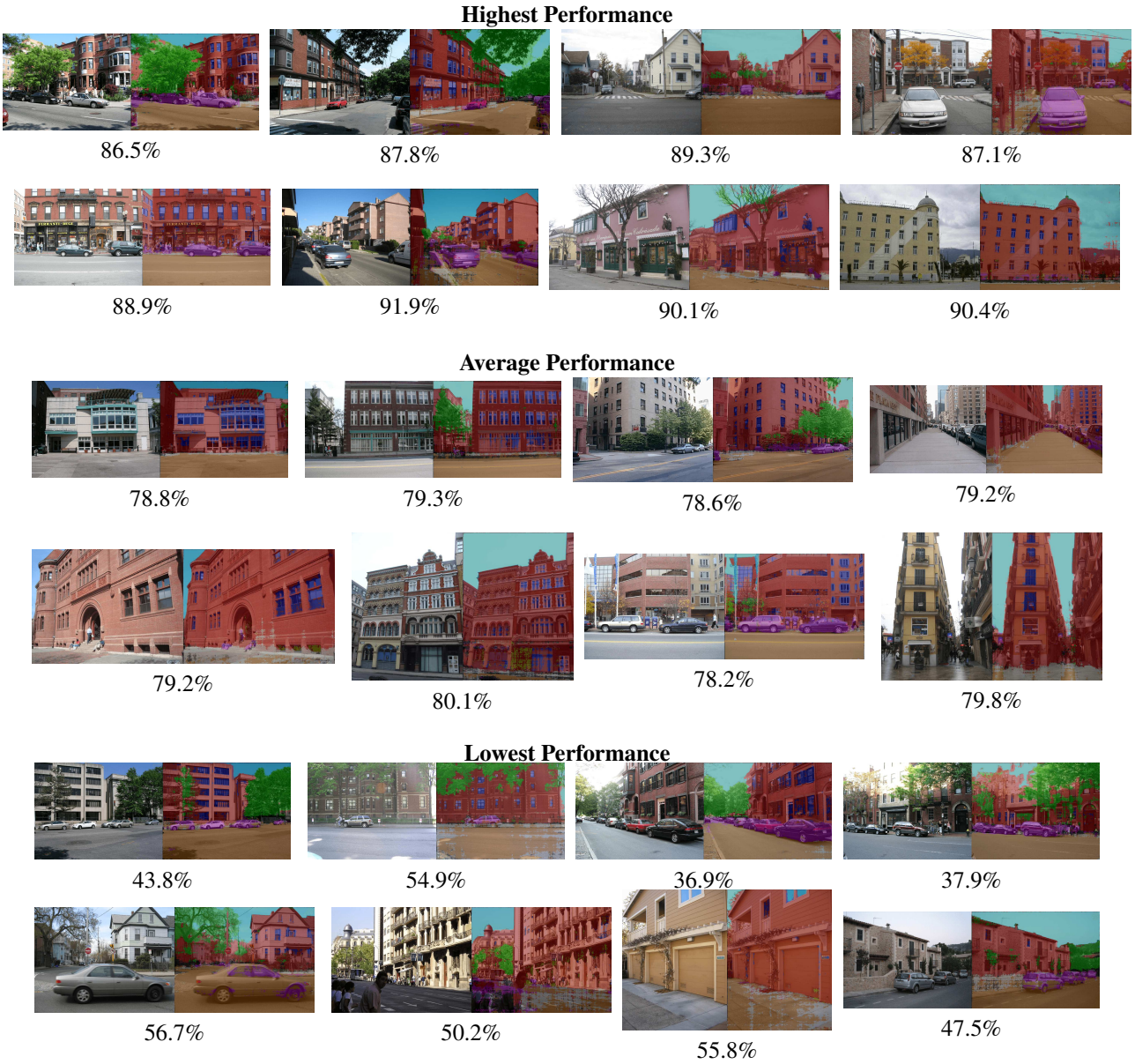

Figure 5. Qualitative results on labelmeFacades dataset images along with overall pixel accuracy (Stage-3 results).

Figure 6. Qualitative results on CMP dataset images along with overall pixel accuracy (Stage-3 results).