

Supplementary material

Improving the accuracy of fast
dense stereo correspondence
algorithms by enforcing local
consistency of disparity fields

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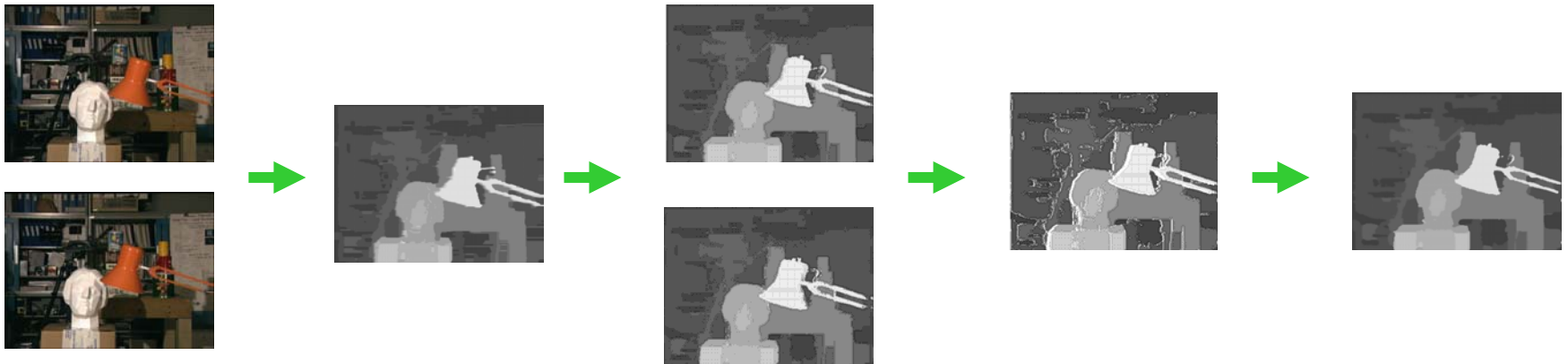
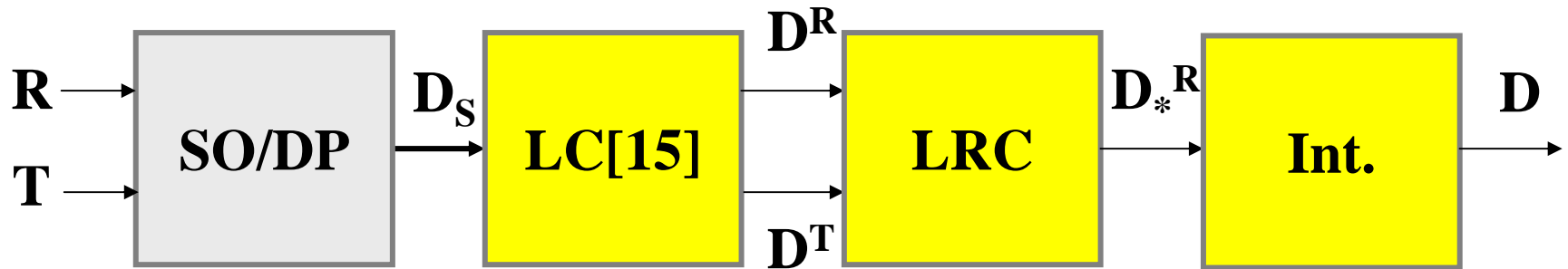
stefano.mattoccia@unibo.it

www.vision.deis.unibo.it/smatt

Additional experimental results

www.vision.deis.unibo.it/smatt/3DPVT2010.htm

Proposed approach



[15] S. Mattocchia. A locally global approach to stereo correspondence, In *3DIM2009*, pages 1763–1770, Kyoto, Japan, 2009.

Experimental results

Enforcing local consistency of
the C-Semiglobal algorithm
(reference [10] in the paper)

[10] H. Hirschmuller. Stereo processing by semi-global matching and mutual information, *IEEE Trans. on PAMI*, 2(30):328–341, 2008

Evaluation on the Middlebury* dataset

Error Threshold = 1 Error Threshold... ▾		Sort by nonocc ▼			Sort by all ▼			Sort by disc ▼			Average Percent Bad Pixels			
Algorithm	Avg. Rank ▼	Tsukuba ground truth			Venus ground truth			Teddy ground truth				Cones ground truth		
		nonocc	all	disc	nonocc	all	disc	nonocc	all	disc		nonocc	all	disc
AdaptingBP [17]	4.6	1.11 ₁₀	1.37 ₅	5.79 ₁₁	0.10 ₁	0.21 ₃	1.44 ₂	4.22 ₃	7.06 ₄	11.8 ₄	2.48 ₂	7.92 ₇	7.32 ₃	4.23
CoopRegion [41]	4.6	0.87 ₁	1.16 ₁	4.61 ₁	0.11 ₂	0.21 ₂	1.54 ₄	5.16 ₁₀	8.31 ₇	13.0 ₇	2.79 ₆	7.18 ₄	8.01 ₁₀	4.41
DoubleBP [35]	6.4	0.88 ₃	1.29 ₂	4.76 ₃	0.13 ₆	0.45 ₁₃	1.87 ₉	3.53 ₂	8.30 ₆	9.63 ₁	2.90 ₈	8.78 ₁₇	7.79 ₇	4.19
OutlierConf [42]	7.3	0.88 ₂	1.43 ₇	4.74 ₂	0.18 ₁₂	0.26 ₈	2.40 ₁₅	5.01 ₆	9.12 ₁₀	12.8 ₆	2.78 ₅	8.57 ₁₃	6.99 ₂	4.60
YOUR METHOD	8.8	1.08 ₉	1.57 ₈	5.86 ₁₂	0.13 ₅	0.25 ₆	1.86 ₈	5.56 ₁₁	11.0 ₁₄	13.9 ₁₀	2.86 ₇	8.31 ₁₀	7.50 ₅	4.99
SubPixDoubleBP [30]	9.8	1.24 ₁₇	1.76 ₁₇	5.98 ₁₃	0.12 ₄	0.46 ₁₄	1.74 ₇	3.45 ₁	8.38 ₈	10.0 ₂	2.93 ₁₀	8.73 ₁₆	7.91 ₉	4.39
WarpMat [55]	11.9	1.16 ₁₁	1.35 ₄	6.04 ₁₄	0.18 ₁₃	0.24 ₅	2.44 ₁₆	5.02 ₇	9.30 ₁₁	13.0 ₉	3.49 ₁₈	8.47 ₁₂	9.01 ₂₃	4.98
Undr+OvrSeq [48]	15.3	1.89 ₃₈	2.22 ₃₄	7.22 ₃₀	0.11 ₃	0.22 ₄	1.34 ₁	6.51 ₁₇	9.98 ₁₂	16.4 ₂₀	2.92 ₉	8.00 ₈	7.90 ₈	5.39
GC+SegmBorder [57]	16.2	1.47 ₂₉	1.82 ₁₉	7.86 ₃₅	0.19 ₁₄	0.31 ₉	2.44 ₁₆	4.25 ₄	5.55 ₁	10.9 ₃	4.99 ₄₆	5.78 ₁	8.66 ₁₈	4.52
AdaptOvrSeqBP [33]	17.4	1.69 ₃₂	2.04 ₂₉	5.64 ₉	0.14 ₇	0.20 ₁	1.47 ₃	7.04 ₂₈	11.1 ₁₆	16.4 ₂₂	3.60 ₂₂	8.96 ₂₀	8.84 ₂₀	5.59
GeoSup [64]	18.8	1.45 ₂₈	1.83 ₂₁	7.71 ₃₄	0.14 ₈	0.26 ₇	1.90 ₁₀	6.88 ₂₅	13.2 ₃₀	16.1 ₁₇	2.94 ₁₁	8.89 ₁₉	8.32 ₁₅	5.80
PlaneFitBP [32]	19.0	0.97 ₇	1.83 ₂₀	5.26 ₇	0.17 ₁₁	0.51 ₁₆	1.71 ₆	6.65 ₂₀	12.1 ₂₄	14.7 ₁₁	4.17 ₃₆	10.7 ₃₇	10.6 ₃₃	5.78
SymBP+occ [7]	19.8	0.97 ₆	1.75 ₁₆	5.09 ₆	0.16 ₉	0.33 ₁₁	2.19 ₁₃	6.47 ₁₆	10.7 ₁₃	17.0 ₂₉	4.79 ₄₃	10.7 ₃₉	10.9 ₃₆	5.92
AdaptDispCalib [36]	21.7	1.19 ₁₄	1.42 ₆	6.15 ₁₆	0.23 ₁₇	0.34 ₁₂	2.50 ₁₉	7.80 ₃₄	13.6 ₃₄	17.3 ₃₄	3.62 ₂₃	9.33 ₂₄	9.72 ₂₇	6.10
Segm+visib [4]	21.8	1.30 ₂₂	1.57 ₉	6.92 ₂₈	0.79 ₄₀	1.06 ₃₅	6.76 ₄₅	5.00 ₅	6.54 ₂	12.3 ₅	3.72 ₂₅	8.62 ₁₅	10.2 ₃₀	5.40
C-SemiGlob [19]	21.8	2.61 ₅₀	3.29 ₄₂	9.89 ₄₇	0.25 ₂₀	0.57 ₁₈	3.24 ₂₅	5.14 ₉	11.8 ₁₈	13.0 ₇	2.77 ₄	8.35 ₁₁	8.20 ₁₁	5.76
MultiResGC [49]	22.3	0.90 ₄	1.32 ₃	4.82 ₄	0.45 ₃₀	0.84 ₂₈	3.32 ₂₆	6.46 ₁₅	11.8 ₁₉	17.0 ₃₀	4.34 ₃₈	10.5 ₃₆	10.7 ₃₅	6.04
SO+borders [29]	22.7	1.29 ₂₁	1.71 ₁₃	6.83 ₂₅	0.25 ₂₁	0.53 ₁₇	2.26 ₁₄	7.02 ₂₇	12.2 ₂₅	16.3 ₁₈	3.90 ₂₉	9.85 ₃₁	10.2 ₃₁	6.03
DistinctSM [27]	24.5	1.21 ₁₆	1.75 ₁₅	6.39 ₁₉	0.35 ₂₄	0.69 ₂₅	2.63 ₂₁	7.45 ₃₃	13.0 ₂₈	18.1 ₃₆	3.91 ₃₀	9.91 ₃₃	8.32 ₁₄	6.14
OverSegmBP [26]	25.2	1.69 ₃₃	1.97 ₂₆	8.47 ₃₈	0.51 ₃₂	0.68 ₂₃	4.69 ₃₆	6.74 ₂₂	11.9 ₂₃	15.8 ₁₅	3.19 ₁₆	8.81 ₁₈	8.89 ₂₁	6.11
MVSegBP [66]	25.2	1.06 ₈	2.78 ₃₈	5.57 ₈	0.20 ₁₅	0.61 ₂₁	2.02 ₁₂	6.53 ₁₈	11.3 ₁₇	14.8 ₁₂	5.29 ₅₁	11.3 ₄₄	14.5 ₅₉	6.34
CurveletSupWgt [73]	25.9	1.40 ₂₇	1.84 ₂₂	7.42 ₃₃	1.00 ₄₆	1.11 ₃₈	4.42 ₃₃	7.85 ₃₅	8.84 ₉	16.8 ₂₇	3.82 ₂₇	6.22 ₂	8.24 ₁₂	5.75

* D. Scharstein, R. Szeliski, <http://vision.middlebury.edu/stereo>

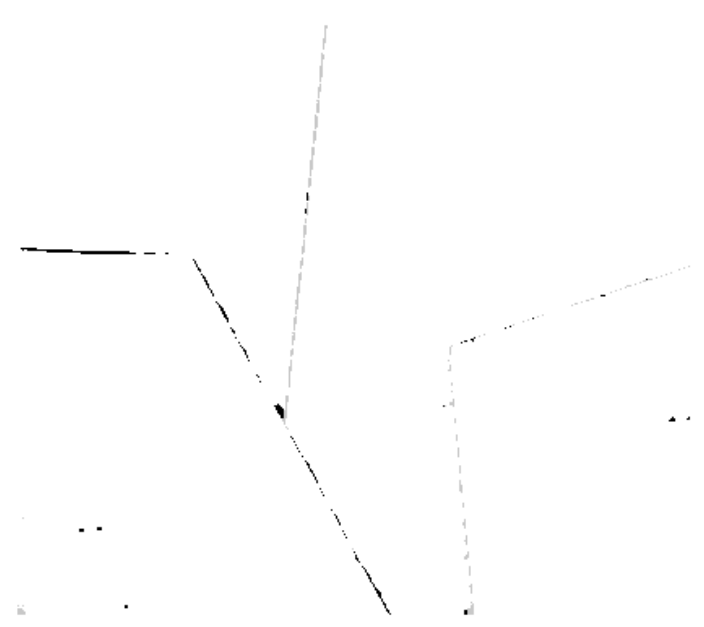
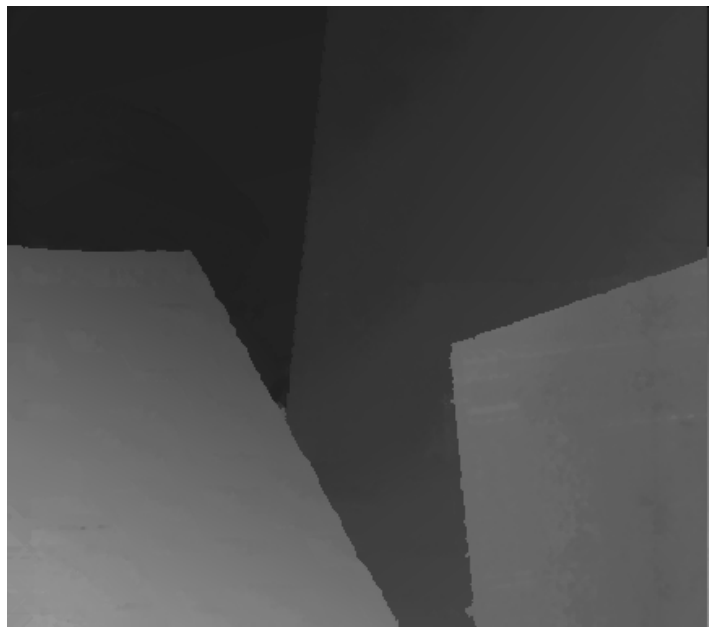
Original C-Semiglobal [10]



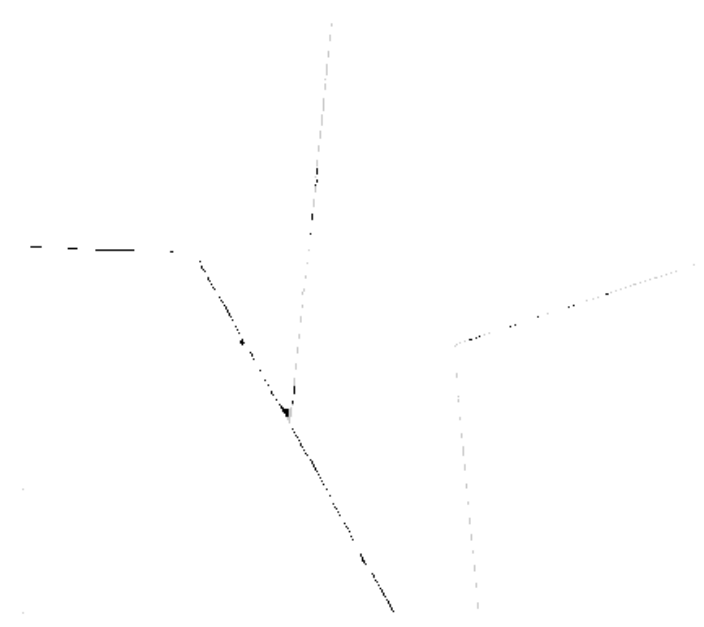
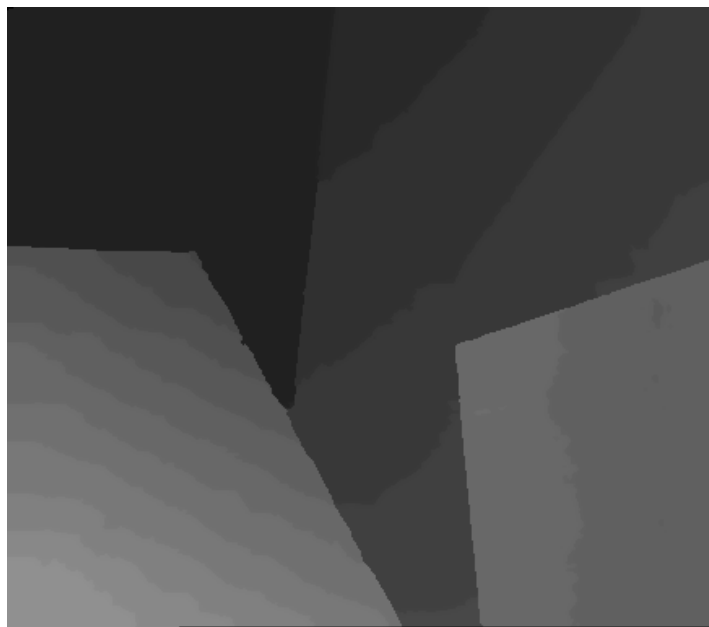
Proposed LC(C-Semiglobal)



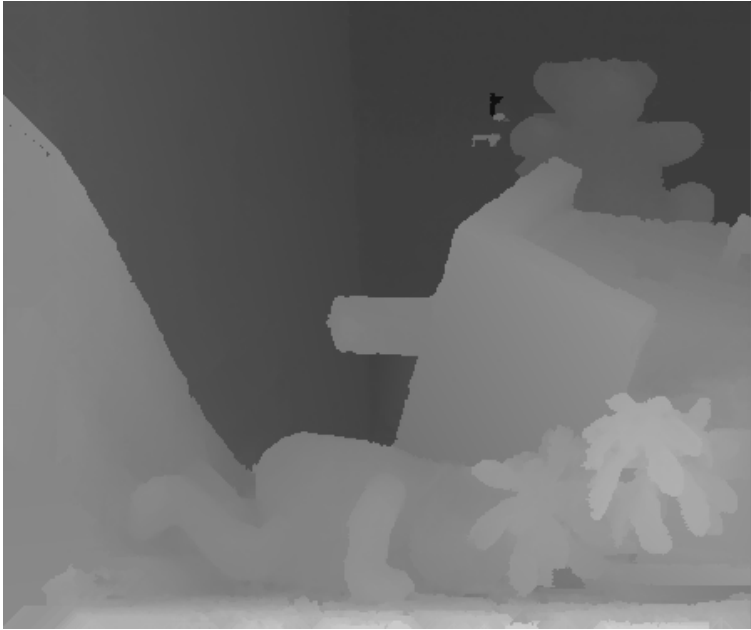
Original C-Semiglobal [10]



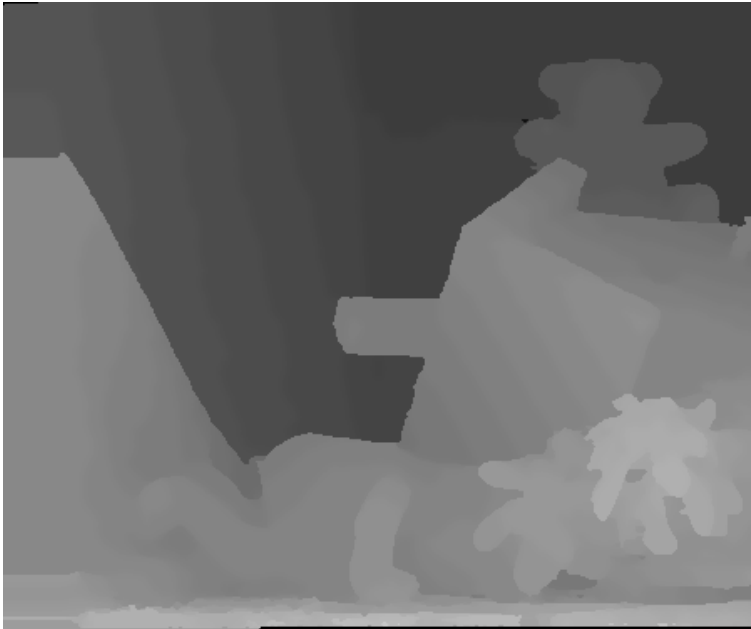
Proposed LC(C-Semiglobal)



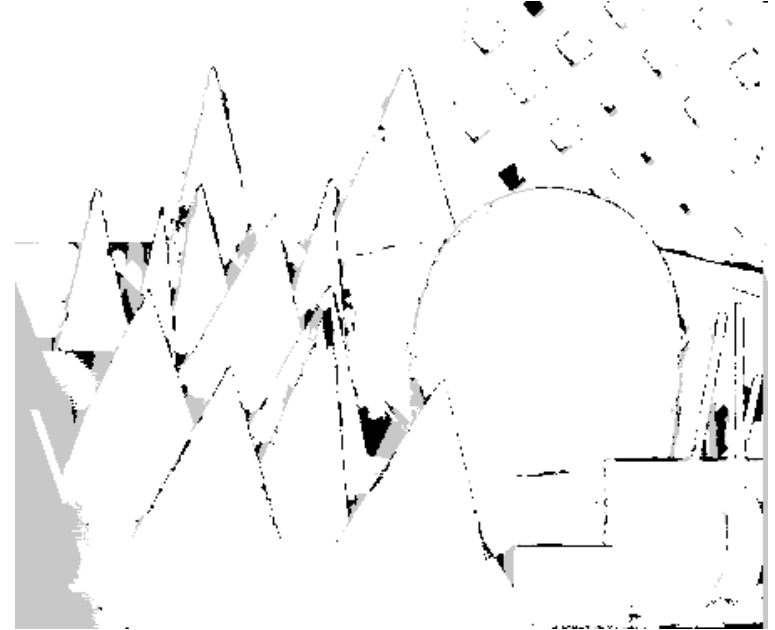
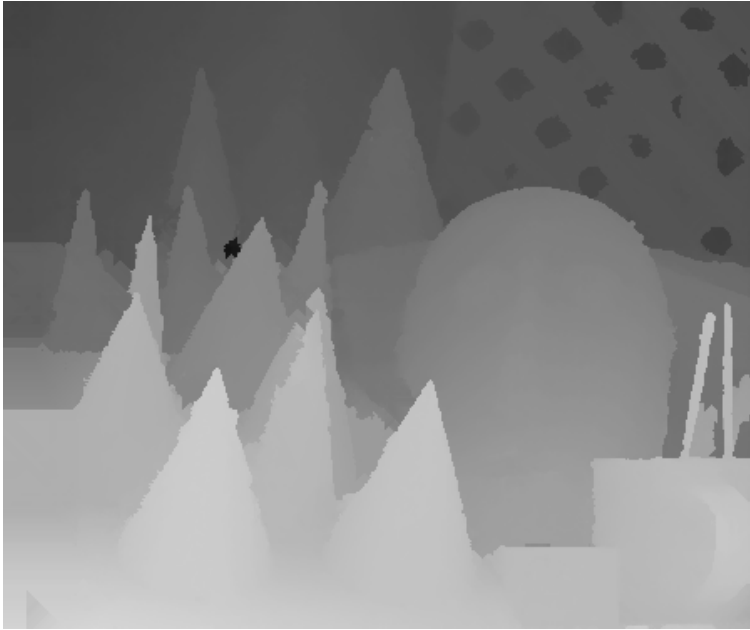
Original C-Semiglobal [10]



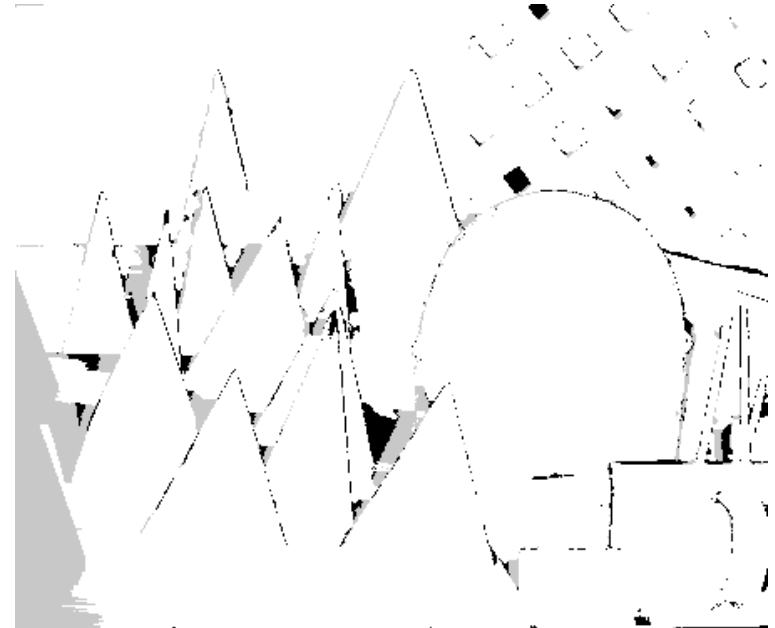
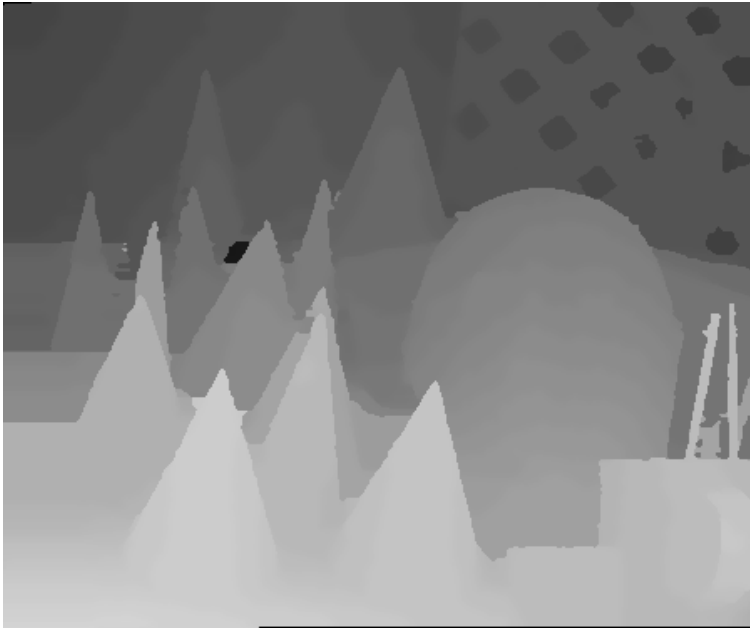
Proposed LC(C-Semiglobal)



Original C-Semiglobal [10]



Proposed LC(C-Semiglobal)


















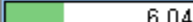





Experimental results






























Enforcing local consistency of
the RTGPU algorithm
(reference [23] in the paper)

[23] L. Wang, M. Liao, M. Gong, R. Yang, and D. Nister, High quality real-time stereo using adaptive cost aggregation and dynamic programming. In *3DPVT '06*, pages 798–805, 2006

Evaluation on the Middlebury* dataset

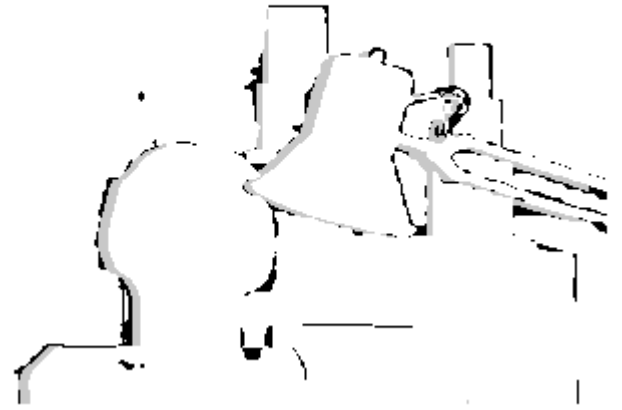
Error Threshold = 1 Error Threshold... ▾		Sort by nonocc ▼			Sort by all ▼			Sort by disc ▼			Average Percent Bad Pixels			
Algorithm	Avg. Rank ▼	<u>Tsukuba</u> ground truth			<u>Venus</u> ground truth			<u>Teddy</u> ground truth				<u>Cones</u> ground truth		
		nonocc	all	disc	nonocc	all	disc	nonocc	all	disc		nonocc	all	disc
CoopRegion [41]	4.5	0.87 1	1.16 1	4.61 1	0.11 2	0.21 2	1.54 4	5.16 10	8.31 7	13.0 7	2.79 6	7.18 4	8.01 9	 4.41
AdaptingBP [17]	4.7	1.11 10	1.37 5	5.79 12	0.10 1	0.21 3	1.44 2	4.22 3	7.06 4	11.8 4	2.48 2	7.92 7	7.32 3	 4.23
DoubleBP [35]	5.9	0.88 3	1.29 2	4.76 3	0.13 5	0.45 12	1.87 8	3.53 2	8.30 6	9.63 1	2.90 7	8.78 16	7.79 6	 4.19
OutlierConf [42]	7.0	0.88 2	1.43 7	4.74 2	0.18 11	0.26 7	2.40 14	5.01 6	9.12 10	12.8 6	2.78 5	8.57 12	6.99 2	 4.60
SubPixDoubleBP [30]	9.5	1.24 17	1.76 17	5.98 13	0.12 4	0.46 13	1.74 7	3.45 1	8.38 8	10.0 2	2.93 9	8.73 15	7.91 8	 4.39
WarpMat [55]	11.5	1.16 11	1.35 4	6.04 14	0.18 12	0.24 5	2.44 15	5.02 7	9.30 11	13.0 9	3.49 17	8.47 11	9.01 22	 4.98
Undr+OvrSeg [48]	15.2	1.89 38	2.22 34	7.22 30	0.11 3	0.22 4	1.34 1	6.51 17	9.98 12	16.4 20	2.92 8	8.00 8	7.90 7	 5.39
GC+SegmBorder [57]	15.9	1.47 29	1.82 19	7.86 35	0.19 13	0.31 8	2.44 15	4.25 4	5.55 1	10.9 3	4.99 46	5.78 1	8.66 17	 4.52
AdaptOvrSegBP [33]	17.1	1.69 32	2.04 29	5.64 10	0.14 6	0.20 1	1.47 3	7.04 28	11.1 15	16.4 22	3.60 21	8.96 19	8.84 19	 5.59
GeoSup [64]	18.2	1.45 28	1.83 21	7.71 34	0.14 7	0.26 6	1.90 9	6.88 25	13.2 30	16.1 17	2.94 10	8.89 18	8.32 14	 5.80
PlaneFitBP [32]	18.8	0.97 7	1.83 20	5.26 7	0.17 10	0.51 15	1.71 6	6.65 20	12.1 24	14.7 11	4.17 36	10.7 37	10.6 33	 5.78
SymBP+occ [7]	19.5	0.97 6	1.75 16	5.09 6	0.16 8	0.33 10	2.19 12	6.47 16	10.7 13	17.0 29	4.79 43	10.7 39	10.9 36	 5.92
YOUR METHOD	20.1	1.02 8	1.68 12	5.50 8	0.31 22	0.63 21	3.17 23	6.36 14	12.1 23	14.3 10	4.14 34	9.98 34	10.6 32	 5.82
AdaptDispCalib [36]	21.2	1.19 14	1.42 6	6.15 16	0.23 16	0.34 11	2.50 18	7.80 34	13.6 34	17.3 34	3.62 22	9.33 23	9.72 26	 6.10
Segm+visib [4]	21.4	1.30 22	1.57 8	6.92 28	0.79 40	1.06 35	6.76 45	5.00 5	6.54 2	12.3 5	3.72 24	8.62 14	10.2 29	 5.40
C-SemiGlob [19]	21.4	2.61 50	3.29 42	9.89 47	0.25 19	0.57 17	3.24 25	5.14 9	11.8 17	13.0 7	2.77 4	8.35 10	8.20 10	 5.76
SO+borders [29]	22.2	1.29 21	1.71 13	6.83 25	0.25 20	0.53 16	2.26 13	7.02 27	12.2 25	16.3 18	3.90 28	9.85 30	10.2 30	 6.03
MultiResGC [49]	22.2	0.90 4	1.32 3	4.82 4	0.45 30	0.84 28	3.32 28	6.46 15	11.8 18	17.0 30	4.34 38	10.5 36	10.7 35	 6.04
DistinctSM [27]	24.2	1.21 16	1.75 15	6.39 19	0.35 24	0.69 25	2.63 20	7.45 33	13.0 28	18.1 36	3.91 29	9.91 32	8.32 13	 6.14
OverSegmBP [26]	24.9	1.69 33	1.97 26	8.47 38	0.51 32	0.68 23	4.69 38	6.74 22	11.9 22	15.8 15	3.19 15	8.81 17	8.89 20	 6.11
MVSegBP [66]	25.1	1.06 9	2.78 38	5.57 9	0.20 14	0.61 20	2.02 11	6.53 18	11.3 16	14.8 12	5.29 51	11.3 44	14.5 59	 6.34

* D. Scharstein, R. Szeliski, <http://vision.middlebury.edu/stereo>

OverSegmBP [26]	24.9	<u>1.69</u> ³³	1.97 ²⁶	8.47 ³⁸	<u>0.51</u> ³²	0.68 ²³	4.69 ³⁶	<u>6.74</u> ²²	11.9 ²²	15.8 ¹⁵	<u>3.19</u> ¹⁵	8.81 ¹⁷	8.89 ²⁰		6.11
MVSegBP [66]	25.1	<u>1.06</u> ⁹	2.78 ³⁸	5.57 ⁹	<u>0.20</u> ¹⁴	0.61 ²⁰	2.02 ¹¹	<u>6.53</u> ¹⁸	11.3 ¹⁶	14.8 ¹²	<u>5.29</u> ⁵¹	11.3 ⁴⁴	14.5 ⁵⁹		6.34
CurveletSupWgt [73]	25.8	<u>1.40</u> ²⁷	1.84 ²²	7.42 ³³	<u>1.00</u> ⁴⁶	1.11 ³⁸	4.42 ³³	<u>7.85</u> ³⁵	8.84 ⁹	16.8 ²⁷	<u>3.82</u> ²⁶	6.22 ²	8.24 ¹¹		5.75
CostAggr+occ [39]	26.2	<u>1.38</u> ²⁴	1.96 ²⁵	7.14 ²⁹	<u>0.44</u> ²⁹	1.13 ³⁹	4.87 ³⁷	<u>6.80</u> ²³	11.9 ²⁰	17.3 ³³	<u>3.60</u> ²⁰	8.57 ¹³	9.36 ²³		6.20
SegmentSupport [28]	26.4	<u>1.25</u> ¹⁸	1.62 ¹⁰	6.68 ²¹	<u>0.25</u> ¹⁸	0.64 ²²	2.59 ¹⁹	<u>8.43</u> ⁴⁶	14.2 ⁴³	18.2 ³⁷	<u>3.77</u> ²⁵	9.87 ³¹	9.77 ²⁷		6.44
LocallyConsist [69]	26.4	<u>1.70</u> ³⁴	2.21 ³²	5.67 ¹¹	<u>0.16</u> ⁹	0.32 ⁹	1.63 ⁵	<u>8.68</u> ⁴⁹	13.9 ³⁸	17.0 ²⁸	<u>4.19</u> ³⁷	10.8 ⁴⁰	9.72 ²⁵		6.33
RegionTreeDP [18]	27.7	<u>1.39</u> ²⁶	1.64 ¹¹	6.85 ²⁶	<u>0.22</u> ¹⁵	0.57 ¹⁷	1.93 ¹⁰	<u>7.42</u> ³²	11.9 ²¹	16.8 ²⁵	<u>6.31</u> ⁵⁹	11.9 ⁴⁹	11.8 ⁴¹		6.56
EnhancedBP [24]	29.6	<u>0.94</u> ⁵	1.74 ¹⁴	5.05 ⁵	<u>0.35</u> ²⁵	0.86 ²⁹	4.34 ³²	<u>8.11</u> ⁴³	13.3 ³²	18.5 ⁴¹	<u>5.09</u> ⁴⁹	11.1 ⁴³	11.0 ³⁷		6.69
PUTv3 [63]	30.0	<u>1.77</u> ³⁷	3.86 ⁵⁰	9.42 ⁴⁴	<u>0.42</u> ²⁷	0.95 ³³	5.72 ³⁹	<u>7.02</u> ²⁶	14.2 ⁴²	18.3 ³⁹	2.40 ¹	9.11 ²¹	6.56 ¹		6.64
GradAdaptWgt [60]	30.8	<u>2.26</u> ⁴⁵	2.63 ³⁵	8.99 ⁴¹	<u>0.99</u> ⁴⁴	1.39 ⁴³	4.92 ³⁸	<u>8.00</u> ³⁹	13.1 ²⁹	18.6 ⁴³	<u>2.61</u> ³	7.67 ⁵	7.43 ⁴		6.55
AdaptWeight [12]	31.5	<u>1.38</u> ²⁴	1.85 ²³	6.90 ²⁷	<u>0.71</u> ³⁸	1.19 ⁴¹	6.13 ⁴⁰	<u>7.88</u> ³⁶	13.3 ³³	18.6 ⁴⁴	<u>3.97</u> ³²	9.79 ²⁸	8.26 ¹²		6.67
SegTreeDP [22]	31.8	<u>2.21</u> ⁴⁴	2.76 ³⁷	10.3 ⁴⁹	<u>0.46</u> ³¹	0.60 ¹⁹	2.44 ¹⁵	<u>9.58</u> ⁵³	15.2 ⁵³	18.4 ⁴⁰	<u>3.23</u> ¹⁶	7.86 ⁶	8.83 ¹⁸		6.82
MultiCue [51]	32.4	<u>1.20</u> ¹⁵	1.81 ¹⁸	6.31 ¹⁸	<u>0.43</u> ²⁸	0.69 ²⁴	3.36 ²⁷	<u>7.09</u> ²⁹	14.0 ⁴¹	17.2 ³²	<u>5.42</u> ⁵⁵	12.6 ⁵²	12.5 ⁵⁰		6.89
InteriorPtLP [34]	32.6	<u>1.27</u> ¹⁹	1.62 ⁹	6.82 ²⁴	<u>1.15</u> ⁴⁸	1.67 ⁴⁶	12.7 ⁵⁹	<u>8.07</u> ⁴¹	11.9 ¹⁹	18.7 ⁴⁵	<u>3.92</u> ³¹	9.68 ²⁶	9.62 ²⁴		7.26
ImproveSubPix [25]	33.8	<u>3.00</u> ⁵⁶	3.61 ⁴⁷	10.9 ⁵²	<u>0.88</u> ⁴²	1.47 ⁴⁴	7.10 ⁴⁷	<u>7.12</u> ³⁰	12.4 ²⁷	16.6 ²⁴	<u>2.96</u> ¹²	8.22 ⁹	8.55 ¹⁵		6.90
SemiGlob [6]	35.3	<u>3.26</u> ⁵⁷	3.96 ⁵¹	12.8 ⁵⁶	<u>1.00</u> ⁴⁵	1.57 ⁴⁵	11.3 ⁵²	<u>6.02</u> ¹²	12.2 ²⁶	16.3 ¹⁹	<u>3.06</u> ¹³	9.75 ²⁷	8.90 ²¹		7.50
BP+DirectedDiff [61]	35.4	<u>2.90</u> ⁵³	4.47 ⁵⁶	15.1 ⁶³	<u>0.65</u> ³⁷	1.20 ⁴²	4.52 ³⁴	<u>5.07</u> ⁸	14.7 ⁴⁸	15.7 ¹⁴	<u>2.94</u> ¹¹	12.6 ⁵⁴	7.50 ⁵		7.29
FastBilateral [68]	36.9	<u>2.38</u> ⁴⁷	2.80 ³⁹	10.4 ⁵⁰	<u>0.34</u> ²³	0.92 ³¹	4.55 ³⁵	<u>9.83</u> ⁵⁸	15.3 ⁵⁴	20.3 ⁵⁴	<u>3.10</u> ¹⁴	9.31 ²²	8.59 ¹⁶		7.31
CostRelaxAW [59]	39.3	<u>2.91</u> ⁵⁵	3.49 ⁴⁵	11.4 ⁵³	<u>0.60</u> ³⁵	1.11 ³⁷	6.45 ⁴³	<u>7.92</u> ³⁷	13.7 ³⁵	20.9 ⁵⁸	<u>3.59</u> ¹⁹	9.43 ²⁴	10.3 ³¹		7.66
RealtimeVar [72]	39.6	<u>3.33</u> ⁵⁸	5.48 ⁶³	16.8 ⁶⁷	<u>1.15</u> ⁴⁹	2.35 ⁵⁴	12.8 ⁶⁰	<u>5.88</u> ¹¹	7.25 ⁵	14.9 ¹³	<u>4.61</u> ⁴⁰	6.59 ³	12.9 ⁵²		7.85
BPcompressed [56]	40.2	<u>2.68</u> ⁵¹	3.63 ⁴⁸	9.59 ⁴⁵	<u>1.33</u> ⁵²	1.89 ⁵⁰	9.09 ⁵¹	<u>8.36</u> ⁴⁵	13.9 ³⁹	16.4 ²¹	<u>3.71</u> ²³	9.85 ²⁹	9.92 ²⁸		7.53
RealtimeBP [21]	41.5	<u>1.49</u> ³⁰	3.40 ⁴⁴	7.87 ³⁶	<u>0.77</u> ³⁹	1.90 ⁵¹	9.00 ⁵⁰	<u>8.72</u> ⁵⁰	13.2 ³¹	17.2 ³¹	<u>4.61</u> ⁴¹	11.6 ⁴⁷	12.4 ⁴⁸		7.69
RealtimeBFV [65]	41.6	<u>1.71</u> ³⁵	2.22 ³³	6.74 ²²	<u>0.55</u> ³⁴	0.87 ³⁰	2.88 ²²	<u>9.90</u> ⁵⁹	15.0 ⁵⁰	19.5 ⁴⁷	<u>6.66</u> ⁶²	12.3 ⁵⁰	13.4 ⁵⁵		7.65
VariableCross [44]	41.8	<u>1.99</u> ⁴¹	2.65 ³⁶	6.77 ²³	<u>0.62</u> ³⁶	0.96 ³⁴	3.20 ²⁴	<u>9.75</u> ⁵⁴	15.1 ⁵¹	18.2 ³⁸	<u>6.28</u> ⁵⁸	12.7 ⁵⁵	12.9 ⁵¹		7.60
2OP+occ [37]	41.9	<u>2.91</u> ⁵⁴	3.56 ⁴⁶	7.33 ³²	<u>0.24</u> ¹⁷	0.49 ¹⁴	2.76 ²¹	<u>10.9</u> ⁶³	15.4 ⁵⁵	20.6 ⁵⁶	<u>5.42</u> ⁵⁴	10.8 ⁴²	12.5 ⁴⁹		7.75
CCH+SeqAggr [47]	42.9	<u>1.74</u> ³⁶	2.11 ³⁰	9.23 ⁴²	<u>0.41</u> ²⁶	0.94 ³²	3.97 ³¹	<u>8.08</u> ⁴²	14.3 ⁴⁴	19.8 ⁵⁰	<u>7.07</u> ⁶³	12.9 ⁵⁶	16.3 ⁶³		8.07
VarMSOH [54]	43.2	<u>3.97</u> ⁶²	5.23 ⁶²	14.9 ⁶²	<u>0.28</u> ²¹	0.76 ²⁷	3.78 ³⁰	<u>9.34</u> ⁵²	14.3 ⁴⁵	20.0 ⁵¹	<u>4.14</u> ³⁵	9.91 ³³	11.4 ³⁹		8.17
FastAggreg [45]	45.1	<u>1.16</u> ¹²	2.11 ³¹	6.06 ¹⁵	<u>4.03</u> ⁶⁹	4.75 ⁶⁸	6.43 ⁴²	<u>9.04</u> ⁵¹	15.2 ⁵²	20.2 ⁵²	<u>5.37</u> ⁵³	12.6 ⁵³	11.9 ⁴³		8.24
Unsupervised [74]	45.2	<u>3.89</u> ⁶¹	4.39 ⁵⁴	18.8 ⁷⁰	<u>1.01</u> ⁴⁷	1.14 ⁴⁰	11.3 ⁵²	<u>6.72</u> ²¹	6.98 ³	16.1 ¹⁶	<u>9.93</u> ⁶⁹	10.7 ³⁸	22.5 ⁷²		9.45

Unsupervised [74]	45.2	3.89 ₆₁	4.39 ₅₄	18.8 ₇₀	1.01 ₄₇	1.14 ₄₀	11.3 ₅₂	6.72 ₂₁	6.98 ₃	16.1 ₁₆	9.93 ₆₉	10.7 ₃₈	22.5 ₇₂	9.45
GC+occ [2]	45.4	1.19 ₁₃	2.01 ₂₈	6.24 ₁₇	1.64 ₅₇	2.19 ₅₃	6.75 ₄₄	11.2 ₆₅	17.4 ₆₃	19.8 ₄₉	5.36 ₅₂	12.4 ₅₁	13.0 ₅₃	8.26
MultiCamGC [3]	45.6	1.27 ₂₀	1.99 ₂₇	6.48 ₂₀	2.79 ₆₅	3.13 ₆₀	3.60 ₂₉	12.0 ₆₆	17.6 ₆₄	22.0 ₆₀	4.89 ₄₄	11.8 ₄₈	12.1 ₄₄	8.31
SNCC [77]	45.8	5.17 ₇₄	6.08 ₆₈	21.7 ₇₄	0.95 ₄₃	1.73 ₄₇	12.0 ₅₆	8.04 ₄₀	11.1 ₁₄	22.9 ₆₁	3.59 ₁₈	9.02 ₂₀	10.7 ₃₄	9.41
Layered [5]	46.2	1.57 ₃₁	1.87 ₂₄	8.28 ₃₇	1.34 ₅₃	1.85 ₄₈	6.85 ₄₆	8.64 ₄₈	14.3 ₄₆	18.5 ₄₂	6.59 ₆₁	14.7 ₆₁	14.4 ₅₈	8.24
StereoSONN [71]	47.5	4.04 ₆₄	4.74 ₅₇	18.1 ₆₉	0.53 ₃₃	0.75 ₂₆	6.21 ₄₁	8.53 ₄₇	13.7 ₃₆	20.2 ₅₂	5.07 ₄₇	10.8 ₄₁	14.0 ₅₇	8.89
OptimizedDP [70]	48.1	1.97 ₄₀	3.78 ₄₉	9.80 ₄₆	3.33 ₆₇	4.74 ₆₇	13.0 ₆₁	6.53 ₁₉	13.9 ₄₀	16.6 ₂₃	5.17 ₅₀	13.7 ₅₉	13.4 ₅₆	8.83
AdaptPolygon [43]	48.2	2.29 ₄₆	2.88 ₄₁	8.94 ₄₀	0.80 ₄₁	1.11 ₃₆	3.41 ₂₈	10.5 ₆₁	15.9 ₅₈	21.3 ₅₉	6.13 ₅₇	13.2 ₅₇	13.3 ₅₄	8.32
ConvexTV [46]	48.2	3.61 ₅₉	5.72 ₆₄	18.0 ₆₈	1.16 ₅₀	2.50 ₅₇	12.4 ₅₈	6.10 ₁₃	15.7 ₅₇	16.8 ₂₆	3.88 ₂₇	14.4 ₆₀	11.5 ₄₀	9.30
GenModel [20]	50.5	2.57 ₄₉	4.74 ₅₈	13.0 ₅₇	1.72 ₅₈	3.08 ₅₉	16.9 ₆₄	6.86 ₂₄	15.0 ₄₉	19.2 ₄₆	4.64 ₄₂	14.9 ₆₂	11.4 ₃₈	9.50
RTCensus [50]	51.7	5.08 ₇₃	6.25 ₇₀	19.2 ₇₁	1.58 ₅₆	2.42 ₅₅	14.2 ₆₂	7.96 ₃₈	13.8 ₃₇	20.3 ₅₅	4.10 ₃₃	9.54 ₂₅	12.2 ₄₅	9.73
TensorVoting [9]	52.0	3.79 ₆₀	4.79 ₅₉	8.86 ₃₉	1.23 ₅₁	1.88 ₄₉	11.5 ₅₄	9.76 ₅₅	17.0 ₆₂	24.0 ₆₅	4.38 ₃₉	11.4 ₄₅	12.2 ₄₆	9.25
RealTimeGPU [14]	52.4	2.05 ₄₃	4.22 ₅₃	10.6 ₅₁	1.92 ₆₁	2.98 ₅₈	20.3 ₆₈	7.23 ₃₁	14.4 ₄₇	17.6 ₃₅	6.41 ₆₀	13.7 ₅₈	16.5 ₆₄	9.82
CostRelax [11]	55.1	4.76 ₇₀	6.08 ₆₉	20.3 ₇₃	1.41 ₅₅	2.48 ₅₆	18.5 ₆₅	8.18 ₄₄	15.9 ₅₉	23.8 ₆₃	3.91 ₃₀	10.2 ₃₅	11.8 ₄₂	10.6
ReliabilityDP [13]	55.2	1.36 ₂₃	3.39 ₄₃	7.25 ₃₁	2.35 ₆₃	3.48 ₆₅	12.2 ₅₇	9.82 ₅₇	16.9 ₆₁	19.5 ₄₈	12.9 ₇₅	19.9 ₇₄	19.7 ₆₆	10.7
TreeDP [8]	58.3	1.99 ₄₂	2.84 ₄₀	9.96 ₄₈	1.41 ₅₄	2.10 ₅₂	7.74 ₄₈	15.9 ₇₀	23.9 ₇₁	27.1 ₇₁	10.0 ₇₀	18.3 ₆₉	18.9 ₆₅	11.7
GC [1d]	59.2	1.94 ₃₉	4.12 ₅₂	9.39 ₄₃	1.79 ₆₀	3.44 ₆₄	8.75 ₄₉	16.5 ₇₁	25.0 ₇₄	24.9 ₆₆	7.70 ₆₄	18.2 ₆₈	15.3 ₆₁	11.4
BP+MLH [40]	60.8	4.17 ₆₆	6.34 ₇₁	14.6 ₆₁	1.96 ₆₂	3.31 ₆₂	16.8 ₆₃	10.2 ₆₀	18.9 ₆₅	24.0 ₆₄	4.93 ₄₅	15.5 ₆₃	12.3 ₄₇	11.1
H-Cut [76]	61.5	2.85 ₅₂	4.86 ₆₀	14.4 ₆₀	1.73 ₅₉	3.14 ₆₁	20.2 ₆₇	10.7 ₆₂	19.5 ₆₆	25.8 ₆₉	5.46 ₅₆	15.6 ₆₄	15.7 ₆₂	11.7
SAD-IGMCT [52]	63.4	5.81 ₇₆	7.14 ₇₅	22.6 ₇₆	2.61 ₆₄	3.33 ₆₃	25.3 ₇₃	9.79 ₅₆	15.5 ₅₆	25.7 ₆₈	5.08 ₄₈	11.5 ₄₆	15.0 ₆₀	12.5
DPVI [67]	67.1	4.76 ₆₉	5.83 ₆₅	16.6 ₆₆	4.89 ₇₁	5.66 ₇₁	22.9 ₇₁	11.0 ₆₄	16.2 ₆₀	23.4 ₆₂	9.64 ₆₇	15.6 ₆₅	23.5 ₇₄	13.3
DP [1b]	67.2	4.12 ₆₅	5.04 ₆₁	12.0 ₅₄	10.1 ₇₈	11.0 ₇₈	21.0 ₆₉	14.0 ₆₇	21.6 ₆₇	20.6 ₅₆	10.5 ₇₁	19.1 ₇₁	21.1 ₆₉	14.2
Bipartite [78]	68.1	2.54 ₄₈	4.41 ₅₅	13.6 ₅₈	6.62 ₇₂	7.46 ₇₂	18.6 ₆₆	16.9 ₇₃	24.1 ₇₂	30.2 ₇₃	15.1 ₇₈	21.8 ₇₇	23.0 ₇₃	15.4
PhaseBased [31]	70.4	4.26 ₆₇	6.53 ₇₂	15.4 ₆₄	6.71 ₇₃	8.16 ₇₃	26.4 ₇₅	14.5 ₆₈	23.1 ₆₈	25.5 ₆₇	10.8 ₇₃	20.5 ₇₅	21.2 ₇₀	15.3
RegionalSup [38]	70.6	3.99 ₆₃	6.05 ₆₇	14.2 ₅₉	8.14 ₇₄	9.68 ₇₅	36.8 ₇₈	18.3 ₇₆	26.7 ₇₆	32.1 ₇₄	9.16 ₆₆	19.3 ₇₂	19.9 ₆₇	17.0
IMCT [62]	70.9	4.54 ₆₈	5.90 ₆₆	19.8 ₇₂	3.16 ₆₆	3.83 ₆₆	23.2 ₇₂	18.0 ₇₅	23.1 ₆₉	35.3 ₇₆	12.7 ₇₄	18.5 ₇₀	27.9 ₇₇	16.3
SSD+MF [1a]	71.4	5.23 ₇₅	7.07 ₇₃	24.1 ₇₇	3.74 ₆₈	5.16 ₆₉	11.9 ₅₅	16.5 ₇₂	24.8 ₇₃	32.9 ₇₅	10.6 ₇₂	19.8 ₇₃	26.3 ₇₅	15.7
SO [1c]	73.2	5.08 ₇₂	7.22 ₇₆	12.2 ₅₅	9.44 ₇₇	10.9 ₇₇	21.9 ₇₀	19.9 ₇₇	28.2 ₇₉	26.3 ₇₀	13.0 ₇₆	22.8 ₇₈	22.3 ₇₁	16.6
STICA [16]	74.3	7.70 ₇₈	9.63 ₇₉	27.8 ₇₈	8.19 ₇₅	9.58 ₇₄	40.3 ₇₉	15.8 ₆₉	23.2 ₇₀	37.7 ₇₇	9.80 ₆₈	17.8 ₆₇	28.7 ₇₈	19.7

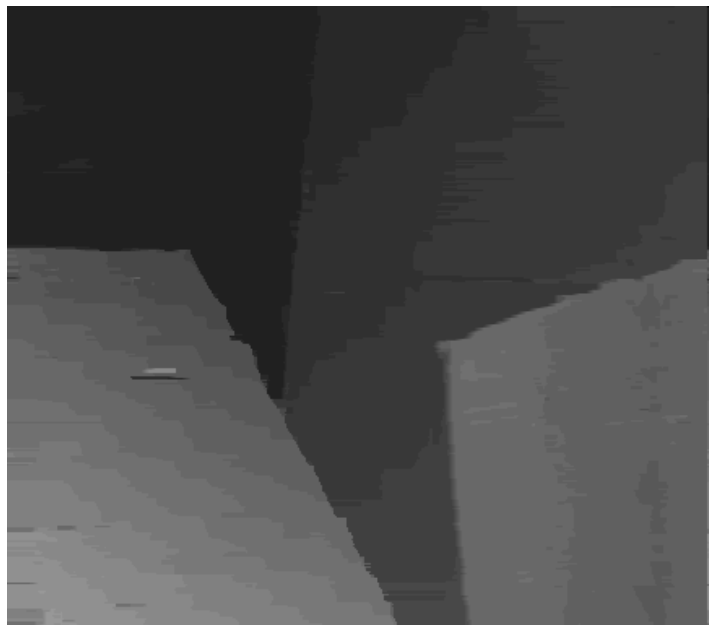
Original RTGPU[23]



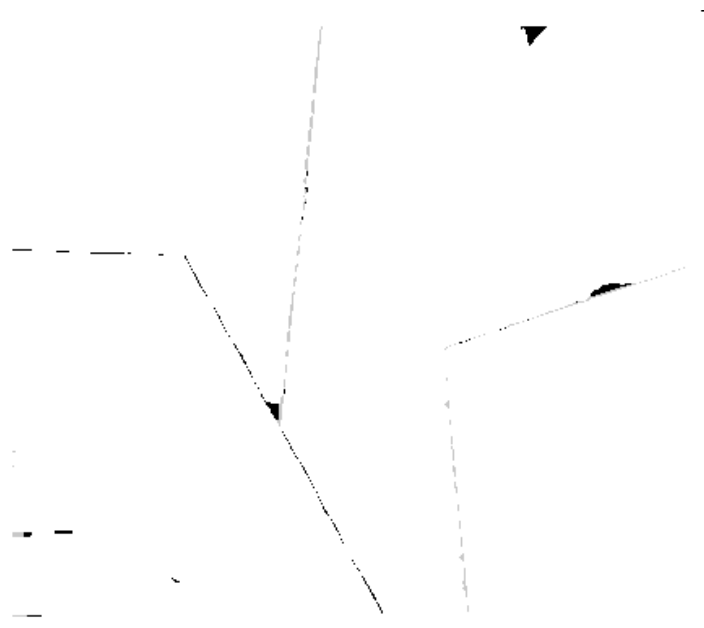
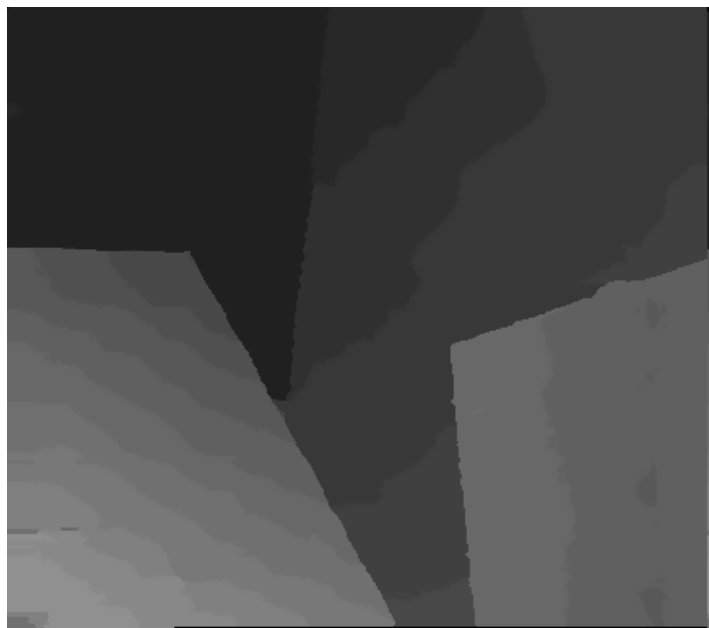
Proposed LC(RTGPU)



Original RTGPU[23]



Proposed LC(RTGPU)



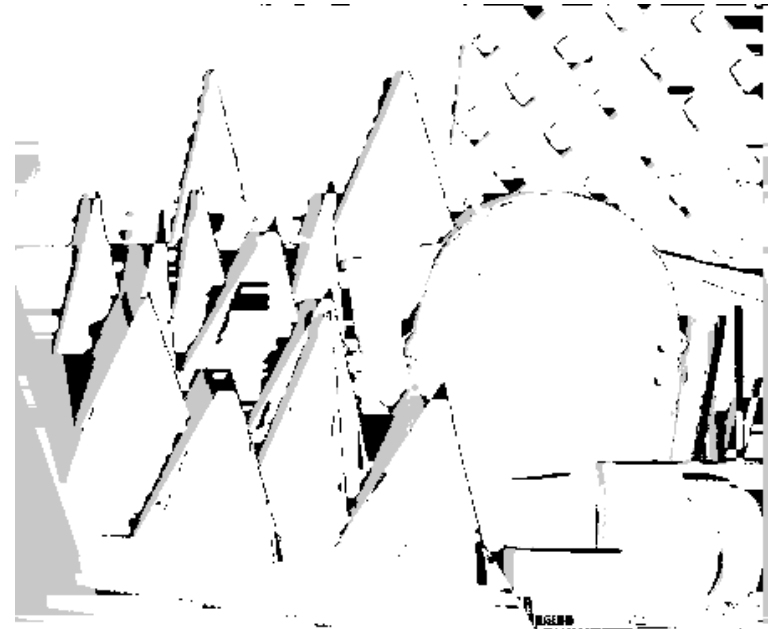
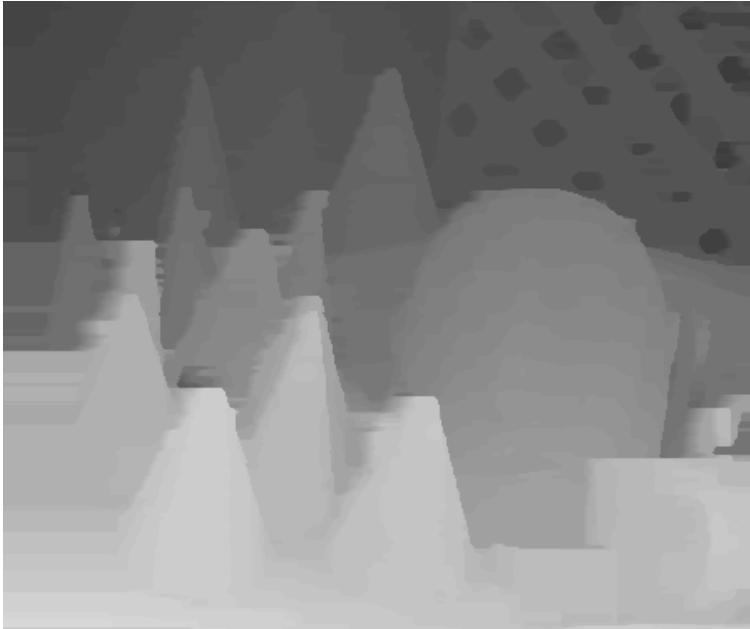
Original RTGPU[23]



Proposed LC(RTGPU)



Original RTGPU[23]



Proposed LC (RTGPU)

