Supplementary Material : Theoretical Analysis of View Interpolation with Inaccurate Depth Information

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1 Input image data from Middlebury Stereo

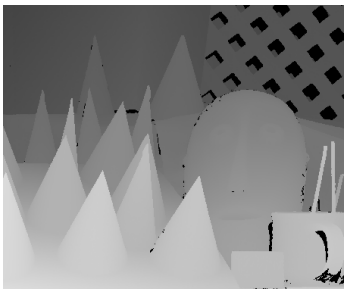
	$v_L(x,y)$	$v_R(x,y)$	$v(x,y)$ and $d(x,y)$
$r = 0.5$			
	im0	*im4*	*im2*
$r = 0.25$			
	im1	*im5*	*disp2*

Figure 1: cones

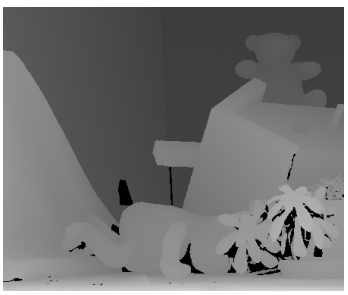
	$v_L(x,y)$	$v_R(x,y)$	$v(x,y)$ and $d(x,y)$
$r = 0.5$			
	im0	*im4*	*im2*
$r = 0.25$			
	im1	*im5*	*disp2*

Figure 2: teddy

2 Results

Table 1: Summary

	Dataset	Disparity errors	viewpoint (r)
Figure 3	cones	Gaussian	0.5
Figure 4	cones	Gaussian	0.25
Figure 5	cones	uniform	0.5
Figure 6	cones	uniform	0.25
Figure 7	teddy	Gaussian	0.5
Figure 8	teddy	Gaussian	0.25
Figure 9	teddy	uniform	0.5
Figure 10	teddy	uniform	0.25

* Note that MSE values may be slightly different from those described in the paper, because disparity errors are generated by a random number generator.

σ	Linear	Linear + opt. band limitation	Optimized
0.5	 MSE = 70.9	 MSE = 70.9	 MSE = 71.5
1.0	 MSE = 88.1	 MSE = 88.1	 MSE = 89.2
3.0	 MSE = 209.5	 MSE = 182.6	 MSE = 177.6
5.0	 MSE = 311.1	 MSE = 252.1	 MSE = 245.4

Figure 3: dataset: *cones*, disparity error: Gaussian, viewpoint: $r = 0.5$

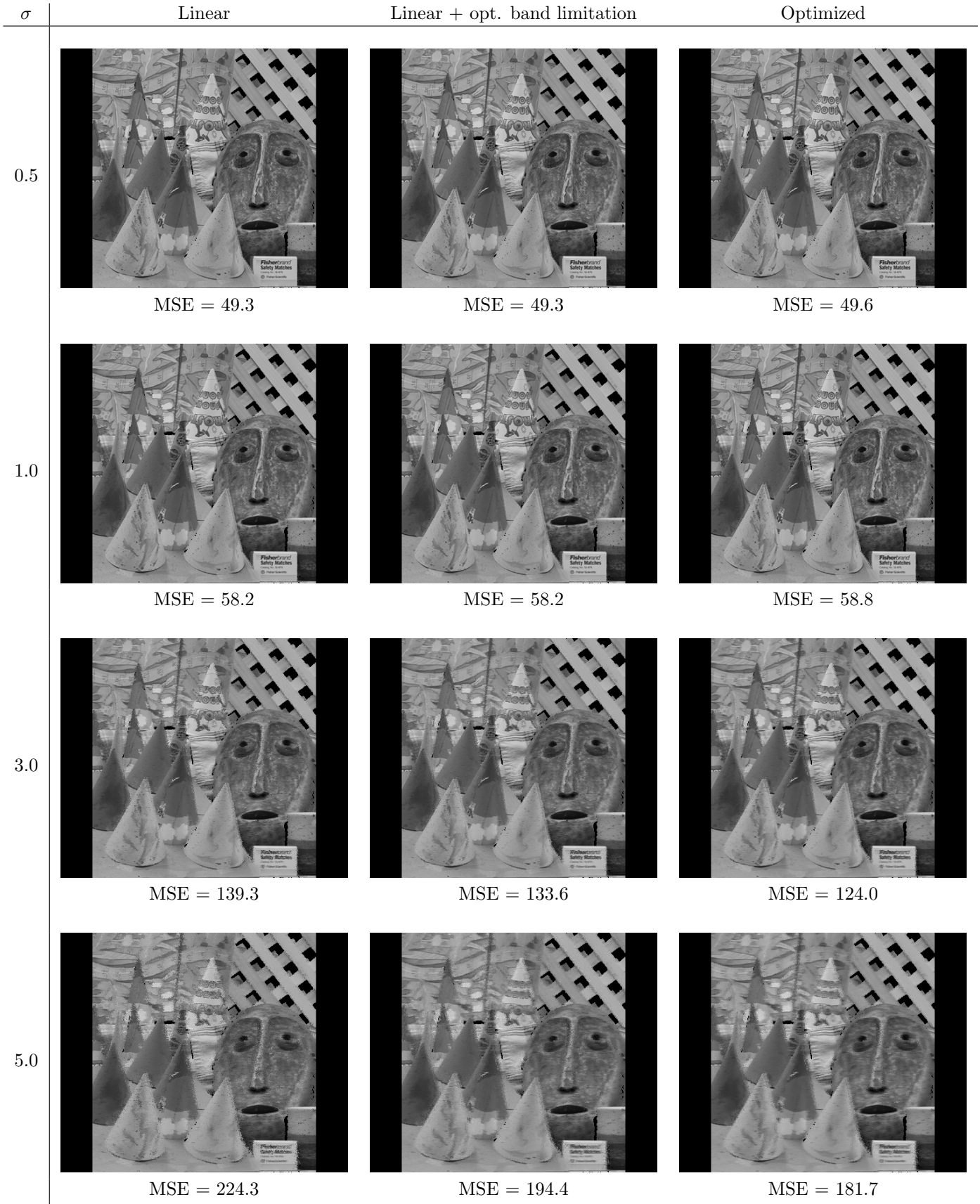


Figure 4: dataset: *cones*, disparity error: Gaussian, viewpoint: $r = 0.25$

a	Linear	Linear + opt. band limitation	Optimized
0.5	 MSE = 69.0	 MSE = 69.0	 MSE = 69.2
1.0	 MSE = 72.8	 MSE = 72.8	 MSE = 73.7
4.0	 MSE = 186.0	 MSE = 153.2	 MSE = 150.9
7.5	 MSE = 306.1	 MSE = 229.6	 MSE = 223.6

Figure 5: dataset: *cones*, disparity error: Uniform, viewpoint: $r = 0.5$

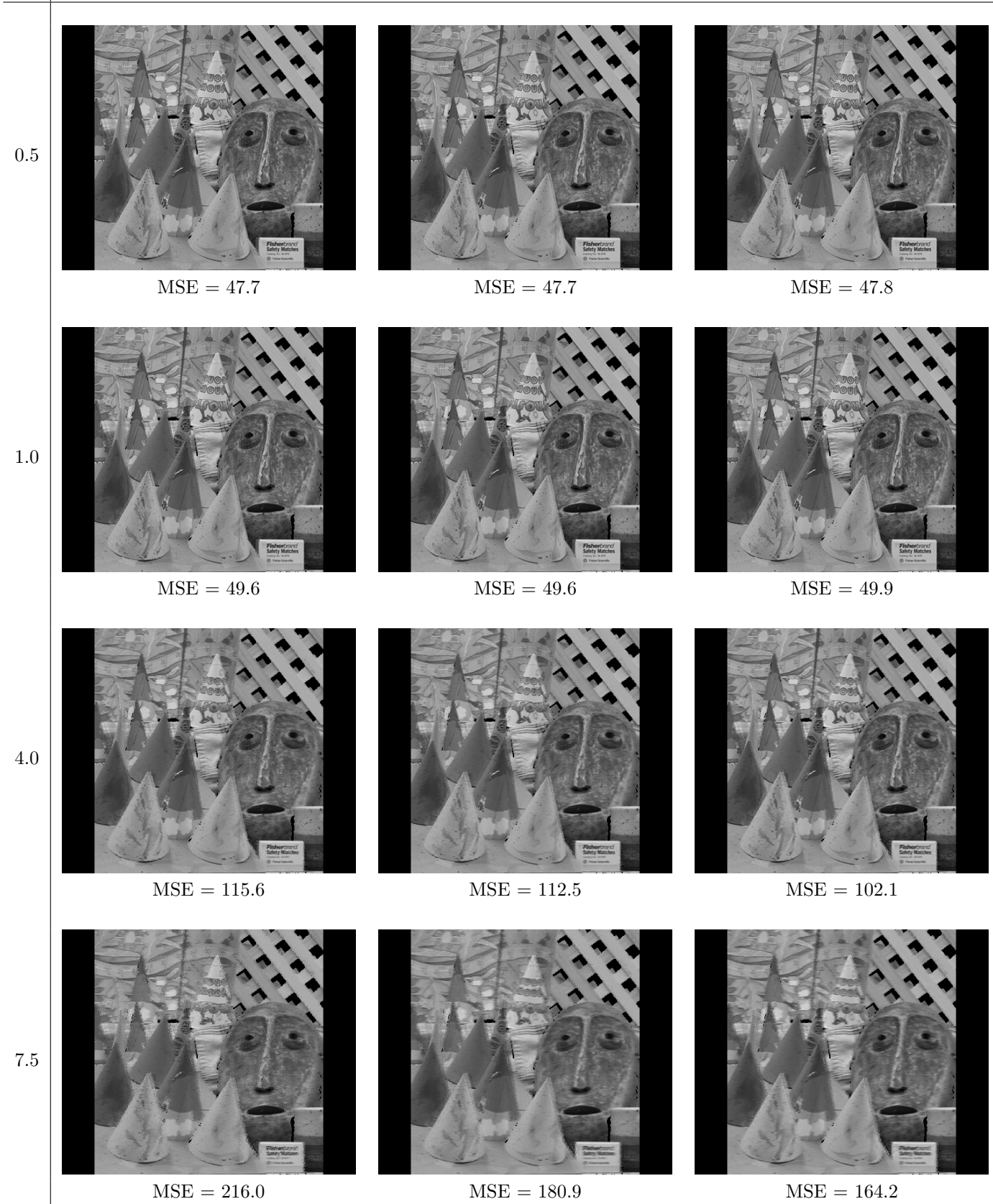


Figure 6: dataset: *cones*, disparity error: Uniform, viewpoint: $r = 0.25$

σ	Linear	Linear + opt. band limitation	Optimized
0.5	 MSE = 82.0	 MSE = 82.0	 MSE = 82.7
1.0	 MSE = 90.5	 MSE = 90.5	 MSE = 91.9
3.0	 MSE = 164.2	 MSE = 147.5	 MSE = 145.6
5.0	 MSE = 225.8	 MSE = 191.6	 MSE = 186.7

Figure 7: dataset: *teddy*, disparity error: Gaussian, viewpoint: $r = 0.5$

σ	Linear	Linear + opt. band limitation	Optimized
0.5	 MSE = 47.8	 MSE = 47.8	 MSE = 48.2
1.0	 MSE = 53.6	 MSE = 53.6	 MSE = 54.4
3.0	 MSE = 102.5	 MSE = 99.1	 MSE = 93.0
5.0	 MSE = 158.4	 MSE = 139.3	 MSE = 129.5

Figure 8: dataset: *teddy*, disparity error: Gaussian, viewpoint: $r = 0.25$

a	Linear	Linear + opt. band limitation	Optimized
0.5	 MSE = 80.9	 MSE = 80.9	 MSE = 81.2
1.0	 MSE = 82.5	 MSE = 82.5	 MSE = 83.7
4.0	 MSE = 147.9	 MSE = 128.4	 MSE = 129.5
7.5	 MSE = 224.5	 MSE = 175.1	 MSE = 173.9

Figure 9: dataset: *teddy*, disparity error: Uniform, viewpoint: $r = 0.5$

a	Linear	Linear + opt. band limitation	Optimized
0.5	 MSE = 47.3	 MSE = 47.3	 MSE = 47.4
1.0	 MSE = 48.3	 MSE = 48.3	 MSE = 48.8
4.0	 MSE = 86.8	 MSE = 84.9	 MSE = 79.3
7.5	 MSE = 150.7	 MSE = 128.5	 MSE = 117.7

Figure 10: dataset: *teddy*, disparity error: Uniform, viewpoint: $r = 0.25$