Modified discussion

The first method of our experimental analysis is for different disparity range for all test stereo images.

The PSNR (Peak signal to noise ratio) for alovera is 6.1 dB at disparity range 16 with MSE (mean square error) 0.1 and run time 9 sec. While for same test stereo image disparity range is increased to 32, PSNR is 6.3 dB with MSE 0.097 and run time 22sec .On increasing disparity range to 64 PSNR for alovera is 10.2dB and MSE is 0.039 and run time 76sec.The optimal disparity map is achieved with respect to ground truth by our method using minimum sum belief propagation for alovera is at disparity range 64 with high PSNR and low MSE for 10 iterations even though run time increases with disparity range.

In similar way for baby test stereo image at disparity range 16 PSNR is 4.3dB, MSE is 0.15 and run time is9sec. While for same test stereo image disparity range is increased to 32, PSNR is 6.7 dB with MSE 0.09 and run time 19 sec .On increasing disparity range to 64 PSNR for baby is 8.7dB and MSE is 0.06 and run time 77 sec. The optimal disparity map is achieved with respect to ground truth by our method using minimum sum belief propagation for baby is at disparity range 64 with high PSNR and low MSE for 10 iterations even though run time increases with disparity range.

Similarly for Pot test stereo image at disparity range 16, PSNR is 5.3dB, MSE is 0.12 and runtime is 6 sec. As disparity range is increased to 32 for baby PSNR is 5.3dB, MSE is 0.12 and run time is 26sec.On increasing disparity range to 64 PSNR is 6.6dB, MSE is 0.09 and runtime is 73 sec. The optimal disparity map for pot also obtained at 64 disparity range with High PSNR and low MSE by our method for 10 iterations.

Likewise for Tsukuba test stereo image at disparity range 16 PSNR is 11.4dB, MSE is 0.043 and runtime is 6 sec. On increasing disparity range to 32 for Tsukuba PSNR is 13.1dB, MSE is 0.03 and run time is 26 sec. As disparity range is increased to 64, PSNR is decreased to 9.9dB, MSE is increased to 0.06 and run time is 77 sec. The optimal disparity map for Tsukuba is obtained by our method using minimum sum Belief Propagation with high PSNR and low MSE at disparity range 32 for 10 iterations.

In the second method of experimental analysis the tunable parameter (w) from Quadratic linear model used as variable. The truncation (t) parameter is kept at constant one. After finding optimal disparity range from first method for all test stereo image. The disparity range is kept at 64 for alovera, baby and pot, for Tsukuba disparity range is kept at 32. The disparity map is computed for keeping tunable parameter at 0.1, 0.5,1,5,10.\\

As tunable parameter (w) is increased from 0.1 to 10,computational estimates shows that for Alovera optimal disparity map obtained at tunable parameter (w) 10 with PSNR 10.56dB and MSE is at 0.032 for 10 iterations. The optimal disparity map for baby is computed at tunable parameter (w) 5 with PSNR 9.55dB and MSE 0.043 for 10 iterations\\

The disparity map generated for pot at tunable parameter (w) is at 0.1 is very much distorted but as this parameter increased to higher value distortion in disparity map is reduced. The optimum disparity map for pot is obtained at tunable parameter (w) 1 with PSNR 6.5dB and MSE is at 0.09. for 10 iterations\\

The computational estimation for Tsukuba finds optimal disparity map at tunable parameter (w) 5 with PSNR 14.3dB and MSE is at 0.022for 10 iterations