Computer Vision Assignment 4

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1. Assume the optical axis is right on the middle of the screen perspectively and the length of each screen is , so we can say that , and

Apply the similarity of triangle, .

We can write down the equation:

1. Algorithm:
2. Cost Computation:

For cost computation, I implemented sum-of-squared-differences algorithm.

I stored cost in a h\*w\*ch matrix and computed cost with respect to the disparity. Moreover, I also did padding for both left and right image cost.

1. Cost Aggregation:

For cost aggregation, I used box blur in cv2 package. I also tried other filter, but it cannot have best of all images, so I chose the best performance in average bad pixel ratio.

1. Disparity Optimization:

For disparity optimization, I implemented winner-take-all algorithm. It’s simple to implement. Just take the minimum of the cost in all disparity.

1. Disparity Refinement:

For disparity refinement, I did consistency check, hole filling and passed it through weighted median filter.





