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Image and Video Processing

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Hw 06

We have implemented a basic form of block-based hybrid video coder using a fixed block size of 8X8.

I. Successfully implemented the intra-frame prediction using modes 0, 1, and 2.

II. EBMA module was developed based on intensity values with a range of +/- 8.

III. Best prediction block was chosen for the method which has the least variance for the error block.

IV. DCT was done using cv2.dct, and then quantisation was performed between values of 0-16 with 3 different step sizes of 1, 2, and 4.

V. The number of non-zero coefficients for q=1, 2, and 4 were 465544, 462573, and 451678 respectively

VI. The final reconstruction gave us following results.

A. For q=1

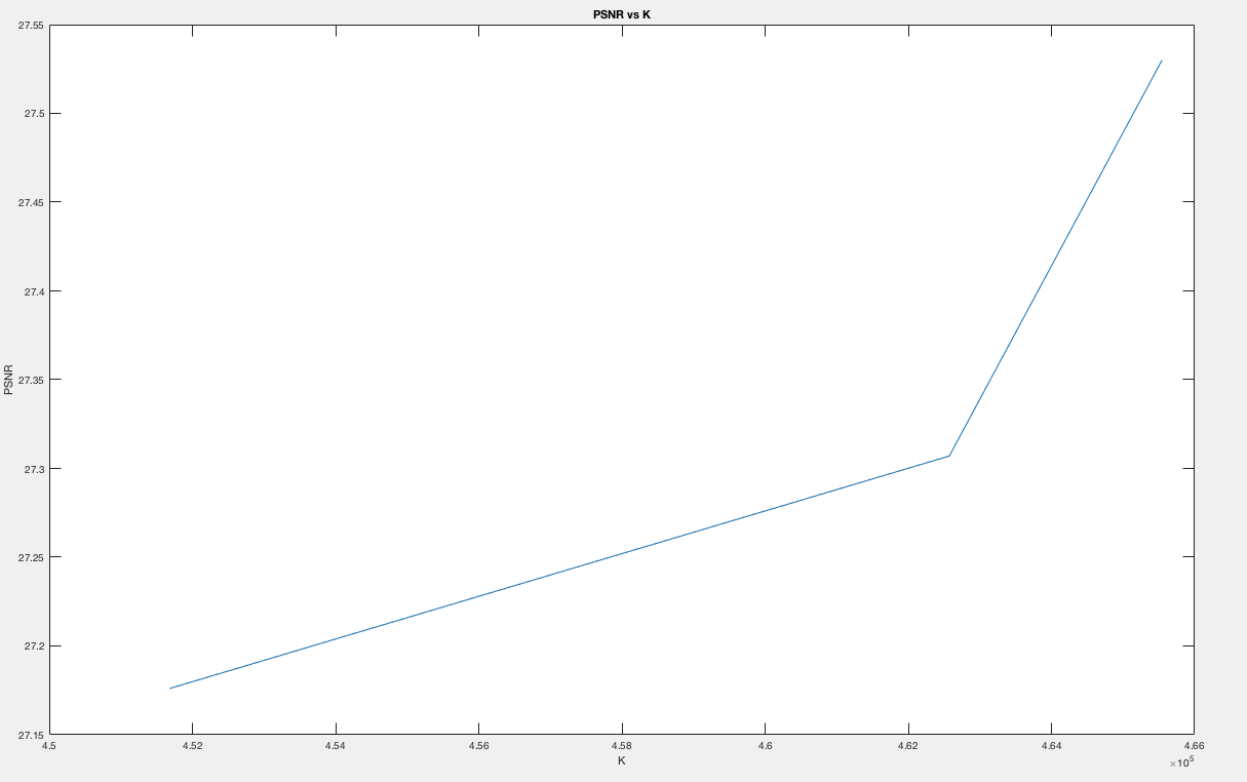
B. For q = 2

C. For q = 4

Thus we see some kind of loss since the frames were too far away. If we see the 2 frames

we can see that since the frames are very far away, the section where most of the motion takes place get distorted the most.

The PSNR vs K plot is



Thus we see that as K increases, the PSNR also increases which should be the case in quantisation. K here represents the number of non-zero elements in the quantised DCT of the error blocks.