Abstract

Correct motion estimation is major concern in developing video coding applications. Among various available motion estimation techniques block matching is most favorites because of its effectiveness and simplicity for hardware and software both. In block based motion estimation techniques, computation is reduced by limiting the number of candidate search points within the search window or by implementing effective search criterion for picking the correct block. Previous pattern based motion estimation algorithm has been suggested in literature which controls the number of search points drastically and hence reduce the computation cost. In this manuscript, a new block based searching method is proposed that uses the motion vector for the just before calculated block as the motion vector for the current block and directly map the block in referenced frame accordingly. Experimental results show that an increase up to 15% in terms of peak signal to noise ratio (PSNR) has been achieved than conventional block matching algorithm with almost same execution time. Further, in terms of quality/computation ratio where quality and computation has been measured in terms of PSNR and execution time respectively, proposed method has 10-20% gain over existing block based technique.
Block Matching Algorithm for Motion Estimation using Previous Motion Vector Pattern

References

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Index Terms

Computer Science

Algorithms

Keywords

Reference frame, motion estimation, mean absolute error, block matching method, video coding.