

AN EFFICIENT LOW-BIT RATE MOTION COMPENSATION TECHNIQUE BASED ON QUADTREE

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ABSTRACT

Quad-tree structured motion-compensation technique effectively utilizes the motion content of a frame as oppose to fixed size block motion compensation technique. In this paper, we propose a novel quad-tree-structured region-wise motion compensation technique that divides a frame into equilateral triangle blocks using the quad-tree structure. Arbitrary partition shapes are achieved by allowing 4-to-1, 3-to-1 and 2-1 merge/combine of sibling blocks having the same motion vector. We propose an optimal code scheme and a temporal predictive coding for the quad-tree. Simulation results show that our techniques reduce the bit rate by 40% as compared to other methods.

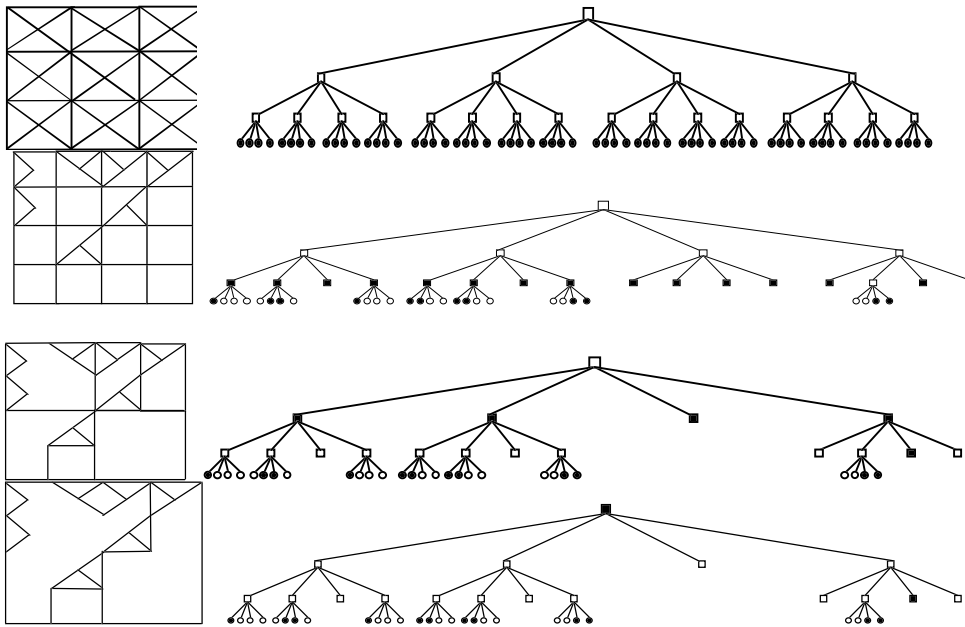


Figure 1: An example of a quadtree representation of a frame and the merge/combine process

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