IMPROVED ARITHMETIC CODING IN H.264/AVC USING CONTEXT−TREE WEIGHTING METHOD

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Abstract : In this paper, an improvement of coding efficiency of the Context−based Adaptive Binary Arithmetic Coding (CABAC) is proposed for applications in Advanced Video Codecs (H.264/AVC). In the paper, more accurate estimation technique for conditional probabilities of symbols is proposed. To achieve that, the well−known data modeling technique of the Context−Tree Weighting (CTW) is used. A novel method of incorporating CTW into the H.264/AVC codec is proposed. The compression efficiency of the modified H.264/AVC codec (with CTW) has been thoroughly tested and compared against the coding efficiency of the original H.264/AVC (with CABAC). Experimental results show that the use of CTW with CABAC allows for up to 2.5% compression efficiency increase with respect to the original CABAC.