DISTRIBUTED VIDEO CODING USING BLOCK BASED CHECKBOARD PATTERN SPLITTING ALGORITHM

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Abstract : This paper presents a novel Distributed Video Coding (DVC) scheme in which the decoder is able to generate side information (SI) with high prediction quality for Wyner–Ziv (WZ) frame decoding. In the proposed method, at encoder, each WZ frame is split into two parts based on checkerboard pattern and then separately coded. At decoder, one part of the WZ frame will be firstly reconstructed, and then Boundary Matching Algorithm (BMA) [12] is used to improve motion compensation of the other part, which can obtain an improved SI of it. As a result, different from the conventional DVC scheme which usually only exploits temporal correlations among the neighboring frames to generate SI, the proposed method is also able to furthermore improve SI quality by the aid of the partially decoded WZ frame. Our experiments are performed based on Transform Domain WZ coding architecture (TDWZA), and the results demonstrate that the proposed method is able to effectively improve the DVC performance.