Adaptive Picture Flipping Coding for Enhancing H.264/AVC

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Abstract :  
We developed a new video coding method called adaptive picture flipping coding (APFC) that improves coding efficiency by utilizing the dependency of the spatial direction of images in intra/inter coding. This method involves flipping input pictures horizontally and/or vertically, and then selecting the best case by using a rate-distortion optimization method. Decoders can identify the selected flipping pattern by using a "flip flag" in the bitstream so that they can decode the sequence in the right position. We implemented APFC onto a H.264/AVC based video encoder. The experimental results show that the bitrate obtained using this method is reduced up to 4.3% for natural image sequences and 7.6% for most typical artificial images.