Content-adaptive Video Coding Combining Object-based Coding and H.264/AVC

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Abstract:
In recent years advanced video codecs have been developed, such as standardized in MPEG-4. The latest video codec standardized, the H.264/AVC, provides compression performance superior to previous standards, but is based on the same basic motion-compensated-DCT architecture. However, for certain kinds of videos, it has also been shown that it is possible to outperform the H.264/AVC using an object-based video codec. The challenge now is to develop a general-purpose object-based video coding system. In this paper, we present an automated approach to separate a video scene into shots that are coded either with an object-based codec or the common H.264/AVC. Using this idea of applying different video codecs for different kinds of content, we achieve a higher coding gain for the whole video scene considered. For the first experimental evaluation, we consider a football sequence.