DYNAMIC COMPLEXITY CODING: COMBINING PREDICTIVE AND DISTRIBUTED VIDEO CODING

Author(s) :
Stefaan Mys (Multimedia Lab – UGent, Belgium)
Jürgen Slowack (Multimedia Lab – UGent, Belgium)
Jozef Skorupa (Multimedia Lab – UGent, Belgium)
Peter Lambert (Multimedia Lab – UGent, Belgium)
Rik Van de Walle (Multimedia Lab – UGent, Belgium)

Abstract :
In this paper a new video coding paradigm called dynamic complexity coding is presented. It combines conventional predictive coding techniques and distributed video coding concepts to create a codec that is able to adapt to the possibly varying complexity constraints imposed on both encoder and decoder. The main idea is to share the complex motion estimation computations in a dynamic way: if the encoder has more resources available than the decoder, it will do most of the motion search, and vice versa. We present and discuss a dynamic complexity codec that uses a spatial approach, having three modes of operation: predictive video coding mode, hybrid video coding mode using a checkerboard pattern and distributed video coding mode.