Università degli Studi di Brescia

Multimedia Communication Services
Lab experience n. 6

Motion-Compensated Prediction

- Load the first 3 frames of a QCIF yuv 4:2:0 video
- Compute the motion field on the second frame with the first one as a reference frame using a block matching with 16×16 blocks.
- Compute the motion field on the second frame using now the following one as a reference frame.
- Compute now the motion field on the second frame using both the previous and the following frames, by considering, for each possible block, the optimal one among the following three possible schemes

  - Prediction from the previous frame

  - Prediction from the following frame

  - Prediction using the average between the previous and following frames (with symmetric motion vectors)
- Compare the obtained results with the previous ones
- Compute the distribution of gray level values in the original image and in the residual image (prediction error), and compare the entropy (of order zero) in the two cases
- Compute the entropy of the motion vectors.