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EFFICIENT MOTION ESTIMATION UTILIZING QUADRATURE FILTERS (ThuAmOR1)

✱ Author(s) :

Atanas Boev (Tampere University of Technology, Finland)
Chavdar Kalchev (Tampere University of Technology, Finland)
Atanas Gotchev (Tampere University of Technology, Finland)
Tapio Saramäki (Tampere University of Technology, Finland)
Karen Egiazarian (Tampere University of Technology, Finland)

✱ Abstract :

This contribution introduces a computationally–efficient scheme for phase–based motion estimation. The local phase for consecutive dyadic scales and six different directions is retrieved through a complex–valued subband decomposition. It is obtained by a successive use of a recursive Hilbert transformer and recursive power–complementary half–band filter pairs. The so–called approximately linear–phase recursive half–band filter proposed by Renfors and Saramäki is used as a start–up filter for generating both the Hilbert transformer and the half–band filter pairs. Experiments with synthetic image sequences demonstrate that by properly designing the start–up filter, the proposed technique provides, with a considerably reduced number of computations, a performance similar to that in a recently introduced method.

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