COMPLEX DISCRETE WAVELET TRANSFORM BASED MOTION ESTIMATION FOR VISION−BASED TRACKING OF TARGETS (TueAmOR8)

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Abstract :

For tracking applications, the estimation of the “true” motion vector is crucial. The Complex Discrete Wavelet Transform (CDWT) based motion estimation algorithm developed by Magarey and Kingsbury produced superior results for the estimation of the dense flow field. In this work, the use of the CDWT−based motion estimation algorithm for the vision−based tracking of targets has been evaluated. First, a comparison of the results of the CDWT−based ME algorithm with the results of the Lucas and Kanade’s (LK) and Horn and Schunk’s (HS) motion estimation algorithms is per−formed. Second, the tracking performances are compared for the cases of CDWT−based and LK−based flow fields. Lastly, the tracking performance of the proposed tracker is evaluated by using a number of test sequences and is compared to the Correlation and Mean Shift Tracker. It is observed that it can successfully track various different targets and is robust to changes of the target signature.

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