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## **Abstract**

Object tracking in the video sequence is a challenging task because of its various applications

in video compression, video surveillance, robot technology etc. Several object tracking methods exist in spatial and wavelet domain, to work with rigid and non-rigid object boundaries. Spatial domain tracking techniques are not accurate as well as they are slow and this is a major reason why wavelet domain tracking methods are getting popular. Real-valued wavelet transform suffers from shift sensitivity producing inaccurate object tracking. In this paper, we proposed a novel object tracking method using Daubechies Complex Wavelet transform (DaubCxWT). Use of this transform is suitable to track the object from video sequences because of its approximate shift-invariance nature. Tracking of object in the first frame is done by computing the Daubechies complex wavelet coefficients corresponding to the object of interest and then matching energy of these coefficients to the object neighborhood, in Daubechies complex wavelet domain, to perform the tracking in the next consecutive frames. The proposed method needs only complex wavelet coefficients for tracking and hence it is simple in implementation and tracks object efficiently.

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## Index Terms

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## Keywords

Object Tracking Daubechies Complex Wavelet Transform Shift-invariance

