

Abstract

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hybrid wavelet-based video tracking using adaptive contrast change detection in night-time visual surveillance systems

a new method is proposed for detecting/tracking multiple moving objects on night-time lighting conditions. the method is based on integrating both the wavelet-based contrast change detector/locally adaptive thresholding scheme. for outdoor surveillance at night, the size of distant moving objects can be small/the motion between two adjacent images can be very small. the normalized cross-correlation is used to describe the correlation between frames. normalized cross-correlation has the advantage of not being affected significantly by global changes in the lighting from one image to another. in the first stage, the contrast in local change over time is used to detect potential moving objects. then motion prediction/spatial nearest neighbor data association are used to suppress false alarms. the experimental results prove the feasibility/usefulness of the proposed method. experiments on real scenes show that the algorithm is effective for night-time object detection/tracking.