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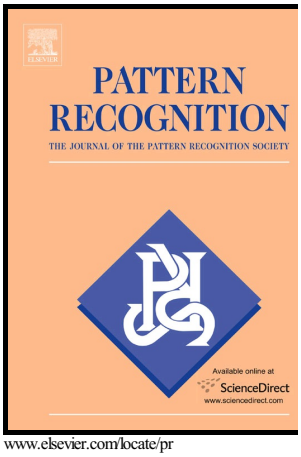

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Combining Motion and Appearance Cues for Anomaly Detection

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Abstract

In this paper, we present a novel anomaly detection framework which integrates motion and appearance cues to detect abnormal objects and behaviors in video. For motion anomaly detection, we employ statistical histograms to model the normal motion distributions and propose a notion of "cut-bin" in histograms to distinguish unusual motions. For appearance anomaly detection, we develop a novel scheme based on Support Vector Data Description (SVDD), which obtains a spherically shaped boundary around the normal objects to exclude abnormal objects. The two complementary cues are finally combined to achieve more comprehensive detection results. Experimental results show that the proposed approach can effectively locate abnormal objects in multiple public video scenarios, achieving comparable performance to other state-of-the-art anomaly detection techniques.

Keywords: Anomaly detection, motion model, appearance model, Support Vector Data Description (SVDD)

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