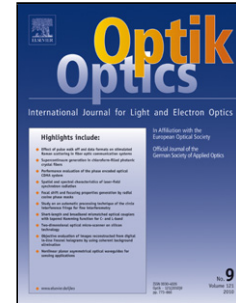


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# Abnormal Event Detection based on Analysis of Movement Information of Video Sequence

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## Abstract

Abnormal event detection is a challenging problem in video surveillance which is essential to the early-warning security and protection system. We propose an algorithm to solve this problem efficiently based on an image descriptor which encodes the movement information and the classification method. The new abnormality indicator is derived from the hidden Markov model which learns the histograms of optical flow orientations of the observed video frames. This indicator measures the similarity between the observed video frame and existing normal frames. The proposed method is evaluated and validated on several video surveillance datasets.

*Keywords:* abnormal event detection; optical flow; hidden Markov model

*2016 MSC:* 00-01, 99-00

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## 1. Introduction

Video surveillance has become an important research area in computer vision. As a part of this subject, abnormal event detection is a key goal which

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