Development of Image Processing Method for Detection of Suspicious Acts

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We are developing an intelligent video surveillance system to maintain security at railway premises. In this paper, we propose a method to detect extraordinary people behaviors such as fighting or vandalism occurring at a station or aboard a train. This method comprises three processes: (ⅰ) Object Detection and Tracking, (ⅱ) Video Scenario Recognition, (ⅲ) Raising an Alarm over Critical Events. From acquired data by the tracking, we have analyzed actual image sequence by a combination of several properties attached to a target. Furthermore, we apply a principal component analysis (PCA) to distinguish suspicious acts from ordinary behavior. Some experiential results on actual paths have indicated the effectiveness and robustness of our proposed method.