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Video Foreground Detection Based on Adaptive Mixture Gaussian Model for Video Surveillance Systems

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Abstract : Modeling background and moving objects are significant techniques for video surveillance and other video processing applications. This paper presents a foreground detection algorithm that is robust against illumination changes and noise based on adaptive mixture Gaussian model (GMM), and provides a novel and practical choice for intelligent video surveillance systems using static cameras. In the previous methods, the image of still objects (background image) is not significant. On the contrary, this method is based on forming a meticulous background image and exploiting it for separating moving objects from their background. The background image is specified either manually, by taking an image without vehicles, or is detected in real-time by forming a mathematical or exponential average of successive images. The proposed scheme can offer low image degradation. The simulation results demonstrate high degree of performance for the proposed method.

Keywords : image processing, background models, video surveillance, foreground detection, Gaussian mixture model
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