Real-Time Illumination Invariant Motion Detection based on Bayesian Algorithm

Elham Kermani*, Abbas Tabari Feshki**

*Electrical Eng. Faculty, K.N. Toosi Univ. of Technology, Tehran, 1431714191, Iran

**Iran University of Medical Sciences, vice chancellor for research, between Chamran and Sheikh Fazlollah highways, Hemmat Highway, Tehran, Iran

Abstract

Visual surveillance is an active research topic in computer vision. The processing of a video stream for characterizing events of interest relies on the detection of moving objects in each frame, so that sometimes the majority of errors in higher level tasks such as tracking are due to wrong detection. Most basic change detection algorithms assume that the illumination of relative scene will remain constant. However, this assumption is not necessarily valid particularly outside a well-controlled laboratory setup. In this paper, a novel illumination invariant method of change detection has been presented which is based on a basic Bayesian change detection method. Moving objects will ultimately be detected using the variance of successive frame differences. Low computational complexity of the proposed algorithm makes it suitable for surveillance systems.

Keywords: Moving object detection, Bayesian, Markov Random Field, Variance of differences, Surveillance.

References


