Surveillance Video Fire Detection by using Wavelet and Support Vector Machine

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Abstract
The occurrence of fire is quite often in many countries all over the world. Fire causes harm to human life and human's property. Most of the time, every building potentially to get fire accidentally [1]. That is why fire detection systems have an important role in raising the alarm if a fire occurs. The approach methods in this study will be conducted in four critical steps. First step is Gaussian Mixture Model based background subtraction. Second step is color segmentation to select the candidate regions by using CIE L∗a∗b∗ color space. Third step is extract the candidate regions features in terms of distinguishing between actual fire and fire like objects by using wavelet analysis. Then, fourth step is classifying the candidate regions features to either actual fire or non-fire by using Support Vector Machine (SVM). The result shows the average accuracy is reached 75.463%.

Keywords: surveillance video, fire detection, image processing, CIE L∗a∗b∗ color space, SVM, wavelet