

# Real-Time Algorithm for Light Gray Smoke Detection in Video Sequences

## Conference paper

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### Abstract

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An algorithm for video-based outdoor light gray smoke early detection has been developed by a complex set of features. This algorithm provides real-time processing for high-resolution video. For this purpose, preliminary smoke regions of interest are extracted based on motion detection and color segmentation in HSV color space. Spatio-temporal analysis is applied to the identified areas on the video sequence: calculation of parameters of high-frequency components and contrast. This approach allows us to identify areas where smoke hides background elements. The result of this step is refined regions of interest. The final step is to estimate the direction of motion in these candidate regions using the optical flow method, analyzing the change of motion vectors over time is taken into account. The results of experimental studies to evaluate the algorithm accuracy and its performance are presented.

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