BACKGROUND SUPPRESSION WITH LOW-RESOLUTION CAMERA
IN THE CONTEXT OF MEDICATION INTAKE MONITORING

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Abstract
As the aging population is growing, new challenges are arising to provide a safe living environment with remote medical monitoring to allow elderly people to stay at home. This paper is concerned with the monitoring of medication intake. [1]. A new technique is proposed for background suppression designed to achieve indoor monitoring for a given video capture device, including low-cost commercially available cameras or webcams with low capturing resolution. The two background images are supposed to be found in the test video sequences, as it is thought to be possible in this application. The background suppression process can be divided into three main steps: (1) Background suppression with the reference being the background image, instead of frame by frame; (2) Background detection using a shape model (HSV); the proposed technique is actually based on measurements of noise output from video capture device. Experimental results are presented comparing foreground detection by the proposed technique, two published background suppression algorithms, and three well-known quality measures.

I. The Challenge

Frame of the Test Video

II. Background Suppression Techniques

Agrawal, Raskar, Chellappa
CVPR06, [4]

Frame of the Test Video

III. Noise Produced by the Camera

IV. Quality Measures Used as Background Suppression Techniques

V. The Proposed Technique

References