VirtualEye - Life Guard for Swimming Pools to Detect Active Drowning

Literature Survey :

1. A CAMERA-BASED SYSTEM FOR EARLY DETECTION OF DROWNING INCIDENTS

Wenmiao Lu and Yap-Peng Tan

Findings :

Possible drowning incidents are quickly detected using a sequential change detection algorithm. The proposed system has been applied to a number of video clips of simulated drowning, and promising results have been obtained.

2. System for Monitoring A Swimming Pool to Prevent Drowning Incidents, 2000.

M. Jerome, US.Pal.

Findings :

Digitized images of a single body are compared at a series of times. The nature of a body, the path of the body, and changes in the position of the body are estimated on the basis of the series of images; and an alarm is activated should the path or movement of the body being observed give cause for concern.

3. Alarm and monitoring device for the presumption of bodies in danger in a swimming pool

M.Edouard

Findings:

Two cameras (1) provide for the permanent immerging of the bottom of the swimming pool. These images are first digitized and then processed by a computer. The superimposition of the two pieces of information permits to analysis all the surfaces of the swimming pool in order to determine if a portion is masked by an obstacle. When such an obstacle is detected, the duration of the presence of each masked pixel is analyzed. After a certain time delay, and for a minimum number of neighboring pixels, an alarm is generated.

4. Detection of Abrupt Change Theory and Application

Michèle Basseville Igor Nikiforov

Findings :

The main goal of this is to describe a unified framework for the design and the performance analysis of the algorithms for solving these change detection problems The early detection of slight changes in the state of the process allows to plan in a more adequate manner the periods during which the process should be inspected and possibly repaired, and thus to reduce the exploitation costs.

5. Detecting salient motion by accumulating directionally-consistent flow

L. Wixson

Findings :

proposes an algorithm for detecting this salient motion that is based on intermediate-stage vision integration of optical flow. Empirical results are presented that illustrate the applicability of the proposed methods to real-world video. Unlike many motion detection schemes, no knowledge about the expected object size or shape is necessary for rejecting distracting motion.

References :

1. C. R. Wren, A. Azarbayejani, T. Darrell and A. P. Pentland, "Pfinder: real-time tracking of the human body," in IEEE Transactions on Pattern Analysis and Machine Intelligence, vol. 19, no. 7, pp. 780-785, July 1997, DOI: 10.1109/34.598236.

2. Cowden, Stephen & Picken, Jonathan. (2019). Safeguarding or Surveillance. Feminist Dissent. 99-139. 10.31273/fd.n4.2019.320.

3. E Pia. 'On Drowning," American Camping Assoc.. 1988.

4. G.J. McLachlan and T. Krishnan. The EM Aliorilhm and Exlenrions. Wiley Interscience, 1997.