

OBJECTIVES

Lifeguard surveillance is a complex task that is crucial for swimmer safety, though few studies of applied visual search have investigated this domain. This current study compared lifeguard and non-lifeguard search skills using dynamic, naturalistic stimuli (video clips of confederate swimmers) that varied in set size and type of drowning. Lifeguards were more accurate and responded faster to drowning targets. Differences between drowning targets were also found: passive drownings were responded to less often, but more quickly than active drownings, highlighting that passive drownings may be less salient but are highly informative once detected. Set size effects revealed a dip in reaction speeds at an intermediate set-size level, suggesting a possible change in visual search strategies as the array increases in size. Nonetheless, the ability of the test to discriminate between lifeguards and non-lifeguards offers future possibilities for training and assessing lifeguard surveillance skills.

Safety in swimming pools is a crucial issue. In this paper, a real time drowning detection method based on HSV color space analysis is presented which uses prior knowledge of the video sequences to set the best values for the color channels. Our method uses a HSV threshold mechanism along with Contour detection to detect the region of interest in each frame of video sequences. The presented software can detect drowning person in indoor swimming pools and sends an alarm to the lifeguard rescues if the previously detected person is missing for a specific amount of time. The presented algorithm for this system is tested on several video sequences recorded in swimming pools in real conditions and the results are of high accuracy with a high capability of tracking individuals in real time. According to the evaluation results, the number of false alarms generated by the system is minimal and the maximum alarm delay reported by the system is 2.6 sec which can relatively be reliable compared to the acceptable time for rescue and resuscitation. Every year, many individuals, including kids under the age of 5 drown in the depths of the swimming pool, and the lifeguards are not well trained enough to handle these situations. Thus arises the requirement for having a system that will consequently detect the drowning individuals and alarm the life guard at such risk. Swimming pool surveillance systems play an essential role in safeguarding the premises. In this project differential pressure approach is used for detection of drowning incidents in swimming pools at the earliest possible stage. The children's life is saved during drowning incidents in the swimming pool by lifting the acrylic plate. The proposed approach consists of RF module, Pressure Sensor and Motor Driver. The demo system based on pressure sensor has an advantage of convenience, cost saving and simple algorithm. The current research adds to this literature by examining lifeguard drowning-detection across two studies using naturalistic, dynamic search tasks. Behavioral responses and eye-movement data were recorded as participants watched staged video clips and attempted to identify if a swimmer was drowning. The results demonstrate lifeguard superiority in response times to drowning events, compared to non-lifeguards. No differences between lifeguard and non-lifeguard eye-movements were noted however.