Establishing the Blink Cycle of the Eye using OTSU Method and Gaussian Filter

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 175
Number 4

Year of Publication: 2017

Authors:
Dominic Asamoah, Peter Amoako-Yirenkyi, Stephen Opoku Oppong, Nuku Atta Kordzo Abiew

10.5120/ijca2017915514

Abstract

Strong and efficient algorithm in real time eye tracking system has been an ultimate and thought-provoking problem for computer vision. This so because most studies have tried to characterized eye using mainly pupil and iris. These features need the full cooperation of the individual making computing information impractical. Secondly, computing information using these features is subjective and also depends on the race. All these methods do not consider the individual making it general as the individual has blink cycle and for that matter different levels of fatigue rendering previous works inaccurate, hence this study. In this paper, a methodology for establishing the blink cycle of the eye is presented. The paper employs a method, where individual’s face is captured by a camera by receiving video sequence which are streamed into frames and then transformed into RGB. Haar classifiers are used to detect eyes region and eyelid feature. The eyes are detected to be either open or closed at a particular period by using thresholding and equations regarding the symmetry of human face. The eye region is processed to ascertain certain attributes of eyelid movement.
References


Index Terms

Computer Science                      Image Processing
Keywords

Blink Cycle, Haar Classifiers, Eyelid movement, Gaussian Filters, Otsu Method