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WILDEYE

Public Engagement Event

Eye movements have long been recognised to provide an alternative channel for communication with, or control of, a machine such as a computer, substituting traditional peripheral devices.

The ample information inherent in the eye movements has attracted increasing interest through the years, leading to a host of eye-gaze tracking applications in several fields, including assistive communication, driver assistance, and marketing and advertising research.

This project aimed to develop a passive eye-gaze tracking platform that provides an alternative communication channel for persons with impaired motor skills permitting them to perform mundane activities such as to operate a computer, hence improving their quality of life and independence, as well as to provide an additional access method for all permitting an auxiliary control input for computer applications, such as games.

In the developed platform, eye and head movements are captured in a stream of image frames acquired by a webcam, and subsequently processed by a computer in order to estimate the eye-gaze direction by combining the eye and head pose components. The estimated eye-gaze is then mapped to the computer screen, to control a graphical user interface that has been purposely developed based on the available gaze estimation accuracy. The graphical user interface features 15 buttons that may be activated by gazing upon them for a pre-set period of time, or by blinking the eyes to confirm the selection.

