



Reading Activity Recognition Using Electrical Signals Originated From Eye Movements in People's Daily Life Situations

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Recent researches in pervasive computing field leads to use of novel techniques for human activity recognition. One of these techniques is electrooculography which helps to record eye movements and by analyzing these movements' patterns it's possible to recognize daily life activities like reading. Eye movement patterns during reading can be detected using only EOG signals from horizontal channel instead of both horizontal and vertical channels, so only horizontal channel electrode placement on subject's face set up for hindrance reduction is used in this work. Despite of channels reduction and by using DTW-based string matching algorithm and reading reference template extraction using wavelet transform and encoding of EOG signal, the performance of classification between reading and non-reading data increased, As it shows 4% increase in maximum recognition rate and also low standard deviation in recognition rate in addition to 7% increase in mean of recall which demonstrate that the algorithm is more robust and reliable in comparison with previous algorithms encountering various situations and subjects.