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Driver's drowsiness detection by vision

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Abstract : In this work we propose an approach for monitoring the physiological state of driver using a pseudo electrooculogram EOG signal, which is generated from the video signal captured by a 60 fps camera. Comparing to existing methods, our approach has the advantage of being as accurate as the approach that uses the physiological EOG, while being easy to implement, since it avoids the use of electrodes. Different features are extracted from the pseudo EOG and used as inputs to a fuzzy logic based classifier to classify the driver's state as awake or drowsy. Our proposed approach has the advantage of being less intrusive, practical and of reasonable cost, compared to some other existing methods, and efficient which is confirmed by the experimental results obtained.

Keywords : EOG, physiological state classification, Fuzzy logic, Driver drowsiness