

Drowsiness Detection Technique for the Support of the Train Operation of the Train Driver

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This study aims at development of a system which outputs warning information depending on the estimated degree of the drowsiness of a train driver. Based on the quantity of eyeblink characteristic data of a subject operating a driving simulator, we established an estimation equation of the drowsiness, using the principal component regression analysis. By the spectrum analysis, we also found out that the minute up-and-down movement of the face occurred when drowsiness occurred, and confirmed that there was a high correlation between the index given by the minute up-and-down movement and a sleepiness rating level. We experimentally produced a device which emits alerts such as the attention awakening to a driver depending on the drowsiness degrees.