Multiple Measures of Driver Drowsiness – A Correlation Study

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During a nighttime simulation study, driver drowsiness was determined with a time resolution of 2 minutes utilizing multiple subjective and objective measures (Karolinska sleepiness scale, microsleep assessment, driver performance, scored microsleeps and non-microsleeps, neural network response for microsleep probability, etc.). The results indicate substantial variation between the different drowsiness measures. This may suggest that no single measure alone may be sensitive and reliable enough to quantify driver drowsiness. However, correlation and data fusion methods show great promise for merging these different driver drowsiness measures to track and predict the state of the driver, and to trigger the activation of fatigue countermeasures.