Back to nature: the role of mindfulness interventions in improving well-being in automated driving contexts

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Abstract

Next to safety and efficiency, the potential to improve driving comfort and reduce stress is considered one of the main motivations for forwarding the development of driving automation. However, previous empirical research does not offer conclusive evidence that automated driving will allow passengers to become "mind-free", thereby reducing perceived stress and improving emotional states and well-being. This research examines affective reactions to driving automation and derives measures that foster positive affect and decrease negative affect in this context. Findings from a driving simulator study demonstrate that while participants perceive manual driving as more stressful compared to autonomous driving, it was significantly more difficult for them to relax during autonomous driving. Subsequent experimental studies show that employing an instruction-based intervention can offset this effect and lead to significant improvements in various measures of subjective well-being.