

IEEE Transactions on Intelligent Transportation Systems

Call For Papers

Special Issue on Technologies for risk mitigation and support of impaired drivers

MOTIVATION AND SCOPE

Cooperative Intelligent Transportation Systems and automated safety functions, together with unobtrusive driver monitoring, can compensate for human errors and enhance safety and driving comfort. Especially in the context of autonomous driving it is important to know if the driver is currently capable of driving manually. For this purpose, algorithms that are able to estimate the current driver state have to be developed. The input for these algorithms can be environmental, behavioristic, personal, and physiological data. Such data should be gathered in an unobtrusive way which does not interfere with the driving activity. Furthermore, tools and concepts for supporting impaired drivers are needed. Warning, actuation as well as handover strategies should be multimodal, user oriented and adaptive.

This Special Issue addresses technologies that can mitigate risks related to impaired drivers by detection of critical driver states and/or can provide support to impaired drivers.

While this special issue is, of course, open to all research groups, it will also provide a platform for the ADAS&ME project (European Union's Horizon 2020 research and innovation programme). ADAS&ME is the acronym for "Adaptive ADAS to support incapacitated drivers Mitigate Effectively risks through tailor made HMI under automation".

LIST OF TOPICS: Topics of interest to this special issue include, but are not limited to:

1. Robust detection and prediction algorithms for driver state monitoring (e.g. sleepiness, physical fatigue, stress, distraction, impairing emotions).
2. Sensor systems for unobtrusive driver monitoring.
3. Multimodal, user oriented and adaptive information, warning, actuation and handover strategies.
4. HMI concepts, prototypes and guidelines for automated functions that take into account the driver state.

PAPER SUBMISSION GUIDELINES

Paper submission should conform to the information for authors available at <https://mc.manuscriptcentral.com/t-its>.

IMPORTANT DATES

First submission deadline: August 2020

Notification of first decision: November 2020

First revision submission deadline: January 2021
Notification of final decision: June 2021.
Final manuscript (camera ready) submission deadline: July 2021
Issue of Publication: August 2021

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Christer Ahlström is working as a Senior Researcher at the Swedish National Road and Transport Research Institute (VTI) with acquisition, processing and analysis of data, with particular interest in biomedical engineering aspects of driver inattention and driver sleepiness. He also holds a position as an associate professor in biomedical signal processing at the Department of Biomedical Engineering at Linköping University. Key proficiencies include an ability to extract valuable information from cluttered data sets and out-of-the-box thinking for signal and data analysis design.

Daniel Teichmann received Dipl.-Ing. and Dr.-Ing. (Ph.D.) degrees in electrical engineering from RWTH Aachen University, Germany. Since January 2015, he is the head of the Medical Instrumentation Lab at the Chair for Medical Information Technology at RWTH Aachen University. Daniel is also member of the Integrative Neuromonitoring and Critical Care Informatics Group of MIT's Institute for Medical Engineering & Science where he currently resides. His research interests include unobtrusive vital sign monitoring, biomedical signal processing, and sensor fusion.

Frederik Diederichs is a research specialist in Automotive Human Factors and manager of the Fraunhofer IAO Vehicle Interaction Lab. He publishes and speaks in the field of automated driving, future driving experience, driver state monitoring and driver intentions. Frederik has been involved in applied research and development projects with most OEM, Tier1 and is collaborating with the leading research institutes among Europe in order to drive the future to enjoyable and safe mobility experiences

SUBMISSION AND REVIEW OF PAPERS

Submitted papers should be original and not be under consideration elsewhere for publication. The authors should follow the journal guidelines, regarding the manuscript content and its format when preparing their manuscripts. All papers will be reviewed by at least three independent reviewers for their suitability in terms of technical novelty, scientific rigor, scope, and relevance to this special issue