These papers spread the range from perception and mapping towards planning, control, and cooperative behavior for autonomous vehicles. We hope that this special issue of the ITS Magazine inspires our community to further research that eventually resolves some of the open key issues. The papers published here definitely support the idea that provable functional safety is among the major challenges for any module of autonomous vehicles. Above all, we hope you find this issue thought-provoking, educational, and exciting.
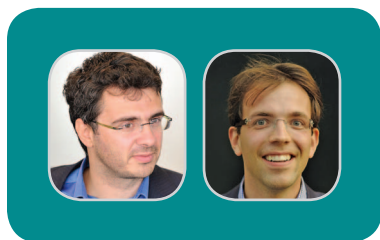
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Special Issue on ITSC2013

Creating realistic detailed models and control strategies for large-scale transportation systems remains a big challenge, due to the high unpredictability and heterogeneity of travelers and the lack of coordinated actions coupled with the limited infrastructure available. This special issue explores the recent developments in Intelligent Transport Systems to improve congestion and safety. At the pre selection level highly ranked papers were invited for submission, from the 16th International IEEE Conference on Intelligent Transportation Systems that took place in Hague, Netherlands 6–9 October, 2013. After a peer review process, a total of four papers (out of 11 submitted) are selected for final inclusion in this special issue ranging from macroscopic to microscopic traffic analysis, machine learning techniques for safety, vehicles to pedestrians and smart technologies.

The paper by Castignani, Derrmann, Frank, and Engel shows how acceleration sensors in the mobile phone can be used to track driver's behavior. In particular they can be used for estimating the risk on accidents for a driver. The paper shows the concept, as well as the algorithmic methodology to use these data and process them—using fuzzy logic—into risk levels.

The paper by Campanella, Halliday, Hoogendoorn and Daamen identifies a crowd management implementation for the safe and efficient movements of more than 100,000 passengers in the metro of Copacabana in Brazil during a big event. This article shows that an analysis identifying bottlenecks and the evolution of spillbacks is the basis of a crowd management plan can significantly improve the pedestrian conditions.

The paper by van Noort, Bakri, Fahrenkrog and Dobberstein deals with Advanced Driver Assistance Systems (ADAS). This paper described a Safety Impact Assessment Tool. The tool provides ex-ante assessment of safety oriented ADAS in terms of saved fatalities and injuries, based on in-depth accident data, results from technical and user related tests, and accident reconstruction models.

Finally, the paper by Gindele, Brechtel, and Dillmann shows how automated learning, including Baysian networks, can be applied to get a good prediction of the traffic movements. This is essential for seamless working of driver assistance and safety systems, which need to be aware of the expected movements of the other vehicles, as well as the desired movements of the driver.

The papers of this special issue are by no means an exhaustive collection of all emerging theories and quantitative methods in transportation science. However, we believe that this special issue can highlight recent developments and novel research directions in multi-disciplinary areas and advance the contributions of the transport research community with respect to intelligent transportation systems. It shows how technology is evolving and how we can make best use for safety, comfort and ease of travel.

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