We thank all contributors who submitted manuscripts to ITST-2012, as well as all the reviewers for their thoughtful and timely reviews. We also thank the IET ITS for giving us the opportunity to invite these papers for possible inclusion in this prestigious journal.

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Yinhai Wang, Javier Sanchez-Medina, and Guohui Zhang

15th IEEE Intelligent Transportation Systems Conference (ITSC 2012) Papers

This special issue of the *IEEE Intelligent Transportation Systems Magazine* contains the full versions of five carefully selected papers from those 438 papers presented at the 15th IEEE International Conference on Intelligent Transportation Systems (ITSC 2012), held in Anchorage, Alaska, September 16–19, 2012. The idea of this special issue was conceived at the planning stage of ITSC 2012. During the conference, the arrangement for this special issue was finalized and the Guest Editors appointed. ITSC 2012 attracted 438 submissions from 44 countries or regions. After a rigorous review process, a total of 318 papers were included in the final technical program for presentations and publications in the conference proceedings. Right after the conference, 12 papers were selected for expansion and possible inclusion in this special issue based on conference review ratings as well as the authors' presentation performances. Professors Yinhai Wang, Javier Sanchez-Medina, and Guohui Zhang then invited the authors of these papers to submit full versions of manuscripts for review and possible publication in the *IEEE Intelligent Transportation Systems Magazine*. Ten journal manuscripts were received on time. The manuscripts were divided among the three Guest Editors who in turn appointed referees and handled the review and re-review processes independently. The paper review criteria strictly followed the procedures and standards set forth by IEEE and the Editor-in-Chief of this journal. At the end, the Guest Editors discussed and unanimously decided to include five manuscripts in this special issue. The rest were either rejected, recommended for further revisions, or awaiting review outcome for possible inclusion in future issues of the *IEEE Intelligent Transportation Systems Magazine*.

The five papers included in this special issue deal with various ITS technology development and application issues. The first paper, "A Novel Evaluation Methodology for Combined Performance of Warning and Braking in Crash Imminent Braking Systems" by Chien, Li, and Chen, presents a systematic methodology for evaluation of Crash Imminent Braking (CIB) systems. CIB systems have been equipped in high-end passenger vehicles by many auto manufactures but the features and performance of these CIB systems differ significantly. In this study, a comprehensive method is developed to comprehensively evaluate and compare the performance differences in these CIB systems. The second paper, "Safety Verification of Automated Driving Systems" by Kianfar, Falcone, and Fredriksson, demonstrates an innovative approach for safety verification and performance analysis of an automated system. In this study, reachability analysis technique is used to investigate the minimum required safe inter-vehicle distance for two adaptive cruise controllers. The results indicate that a shorter inter-vehicle distance can be achieved when a feedforward term is used in the controller. The third paper, "Stationary Detection of the Pedestrian's Intention at Intersections" by Koehler, Goldhammer, Bauer, Zecha, Doll, Brunsmann, and Dietmayer, focuses on stationary

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detection of the pedestrian's intention to enter a traffic lane at intersections. An Interacting Multiple Model Extended Kalman Filter (IMM-EKF) based tracking approach is applied and a novel Motion Contour image based HOG-like descriptor (MCHOG) in combination with Support Vector Machine (SVM) classification is developed. A comprehensive evaluation demonstrates the method feasibility. The fourth paper, "Relocation Strategies and Algorithms for Free-Floating Car Sharing Systems" by Weikl and Bogenberger demonstrates several relocation strategies for free-floating car sharing systems. A new integrated two-step model for optimal vehicle positioning and relocation is developed. An offline demand clustering module is highlighted for predicting the optimal future state of spatially available vehicles. The fifth paper, "Performance Limitations in Vehicle Platoon Control" by Solyom and Coelingh analyzes the effects of fundamental limitations on the longitudinal and lateral control performance of a platoon and the effects on following distance, perceived safety, and fuel economy. The trade-off between minimizing fuel consumption and maintaining a safe car following distance is investigated and design guidelines are proposed.

These five papers are representative of the diversity and quality of papers presented at ITSC 2012. Completion of this special issue would not have been possible without strong voluntary help. Many colleagues in the field have contributed significantly to this special issue. We sincerely thank all the authors who have contributed manuscripts for review. We would also like to thank all the reviewers who have contributed their precious time and expertise in the review and re-review processes. IEEE has a policy of keeping reviewer identity anonymous and, therefore, we cannot mention your names here. We gratefully thank the Editor-in-Chief of the *IEEE Intelligent Transportation Systems Magazine*, Professor Jeffrey Miller, for giving us the opportunity to contribute to this journal and Dr. Simona Berte for assisting us in the management of the editorial processes. Along the road that leads to this special issue, we sincerely hope that all authors and reviewers have benefited from exchanging ideas and comments. We also hope that our joint efforts have resulted in a high quality special issue that researchers will enjoy reading and remembering the wonderful moments in ITSC 2012.

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Yinhai Wang received his Ph.D. in transportation engineering from the University of Tokyo in 1998. He is currently on the Board of Governors for the IEEE ITS Society and is a Professor in Civil and Environmental Engineering at the University of Washington (UW). His research focuses on traffic sensing, e-science of transportation, large scale transportation system analysis, traffic accident modeling, traffic control, and traffic simulations. Dr. Wang is the founder and director of the UW Smart Transportation Applications and Research Laboratory (STAR Lab). He is also the director for Pacific Northwest Transportation Consortium (PacTrans), USDOT University Transportation Center for Federal Region 10. He has published over seventy peer-reviewed journal articles and made over 150 technical presentations. He is the winner of the ASCE Journal of Transportation Engineering Best Paper Award for 2003. Dr. Wang served as the publication chairs for the 2007 IEEE ITS Conference in Seattle and the 2010 Intelligent Vehicles Symposium in San Diego. He also served as the program co-chair for the 2012 IEEE ITS Conference in Anchorage.

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