

Road to Transactions on Intelligent Transportation Systems: A Decade's Success

As the year draws to a close, it marks the end of the first decade of our IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS (T-ITS). Over the past ten years, we have experienced various ups and downs, but we survived, and now, we thrive. In this last issue of the passing decade, the Founding, Past, and Current Editors in Chief would like to join everyone in celebrating the tenth anniversary of this great journal. We would like to take this opportunity to share some ideas and reflections on the past, present, and future of this publication.

I. BRIEF HISTORY

IN THE late 1990s, a group of IEEE members, all interested in the growing potential for impact of information technology applications to transportation, launched an effort to organize a Technical Council on ITS within the IEEE. The ITS Council was officially formed in 1999 and transformed into the IEEE Intelligent Transportation Systems Society (ITSS) in 2005.

Interest in starting a T-ITS actually preceded the launch of the Council. The reasons were threefold: First, there was no high-quality, peer-reviewed scholarly journal focused on the numerous technical aspects of ITS technologies spanned by the IEEE at the time that had the institutional support of a financially strong and stable professional organization such as the IEEE. Second, a Council is supposed to provide an outlet, in the form of a Transactions and possibly other types of publications, for member research. Third, it became clear early in the existence of the Council that interest in ITS within the IEEE membership and, more generally, within the engineering professional and academic communities was particularly broad and enthusiastic. This interest became focused on transforming the Council into a Society, and a requirement for a Society was a healthy functioning Transactions. In 1999, the IEEE Technical Activities Board officially approved the creation of T-ITS.

Chelsea C. White, III, who was a member of the faculty at the University of Michigan, Ann Arbor, until January 2002 and then a member of the faculty at the Georgia Institute of Technology, Atlanta, was selected as the founding Editor-in-Chief of the T-ITS. This selection was based on Prof. White's research contributions to ITS, his service as Director of the ITS Center of Excellence at the University of Michigan, his involvement within the ITS community as a member of the

boards of ITS America and the ITS World Congress, and his experience as Editor-in-Chief of two of the Transactions of the Systems, Man, and Cybernetics Society and as Editor-in-Chief of the ITS Journal. An associate editorial board was soon established, and the first issue of the new TRANSACTIONS was published in 2000. Prof. White served as Editor-in-Chief until December 31, 2003.

Dr. Alberto Broggi, who was a Professor with the Department of Computer Engineering, University of Parma, Parma, Italy, succeeded Prof. White as the second Editor-in-Chief in 2004. During his term, our IEEE T-ITS experienced a tremendous growth and significant improvement in both quality and service. In 2008, the Board of Governors (BoG) of the ITSS elected Prof. Broggi as its President-Elect and appointed Dr. Fei-Yue Wang, who was a Research Scientist with the Chinese Academy of Sciences, Beijing, China, and a Professor with the University of Arizona, Tucson, as the third Editor in Chief of the IEEE T-ITS. In October 2009, the Board of Governors elected Prof. Wang as the Editor-in-Chief for the term starting from 2010.

In 2008, Prof. White received the IEEE Outstanding ITS Research Award for his outstanding contributions in global logistics and supply chain research, and Prof. Broggi's team, i.e., the VisLab of the University of Parma, won the IEEE ITS Institution Lead Award for their leadership in intelligent vehicles research. In 2009, Prof. Wang received the IEEE Outstanding ITS Applications Award for his significant contributions in developing agent-based traffic control systems, his pioneer work in artificial transportation systems and parallel transportation management systems, and his leadership in promoting ITS research and applications.

II. STATE OF THE TRANSACTIONS

Over the decade, the T-ITS has substantially increased the number of papers and pages published per year and experienced 330% and 300% growth, respectively. Currently, we accept four types of manuscripts for publication: 1) regular papers; 2) practitioner papers; 3) survey papers; and 4) short papers. Due to a very strong Editorial Board, we have reached a remarkable result in reducing the time from submission to first decision to less than 114 days on average. The number of submissions is continuously increasing, and in 2009, we reached about 1.18 papers per day (with 283 manuscripts received by August 31, 2009), representing an increase of 257% than what we had in 2004 (0.46 per day). The IEEE Periodical Review in 2008 went smoothly, and our outstanding performance was duly noted by the IEEE Publication Services and Products Board. Currently, the acceptance ratio for our publication is in the range of 30%–40%.

Finally, one of the most important performance indexes used to assess any publication is the impact factor; we have made remarkable steps forward: from 1.104 in 2004 to 2.844 in 2008, with notable 3.302 five-year impact factors in 2008. Our journal ranks increasingly higher every year on the IEEE list of publications. Now, we are number 1 among all publications in the transportation section, number 18 among all IEEE TRANSACTIONS and JOURNALS, and number 24 among all IEEE publications. We are proud to state that T-ITS is the youngest publication on the top list.

We would like to take this opportunity to thank our authors, readers, associate editors (AEs), reviewers, and many others for this outstanding accomplishment and for a job well done!

III. NEXT STEPS

The Goal of the IEEE T-ITS is to provide great service to the members of our society, i.e., the IEEE ITSS, and to promote our general ITS professional community in research, development, and applications. For the next two years, our efforts will be focused on the following aspects.

- 1) Enlarging the size of our editorial board. Based on the current trend, we expect that the number of manuscripts submitted to the T-ITS will reach 500 this year or next year. To guarantee the quality of our review process and reduce the workload of our AEs, we must recruit more AEs.
- 2) Enforcing the term limits and performance evaluation. Generally, each AE will serve a two-year term for up to three consecutive terms, i.e., a maximum of six years. AEs will be evaluated at the end of each two-year term. This will ensure dynamic adjustment in the composition of our editorial board, secure a constant source of new talent, ideas, and interaction, and improve the service and development of our journal. Senior editor positions will also be introduced to retain top performers for their experience, expertise, and services.
- 3) Establishing the Best Paper Award. A proposal will be made to both the Board of Governors of the ITSS and the IEEE for the Best Paper Award of the IEEE T-ITS in the beginning of 2010. Meanwhile, to celebrate our tenth anniversary, we will start the process of selecting a list of top papers in ITS based on all papers published in our journal during the period of 2000–2009.
- 4) Creating the Outstanding Editorial Service Award for AEs. Starting from 2009, the Editor-in-Chief will issue up to three service awards to those AEs who have served the T-ITS and timeliness with high quality. In addition to awarding certificates to the selected AEs, a proposal will be made to the ITSS BoG, requesting travel support for them to come to our annual IEEE ITS Conference to receive the awards.
- 5) Increasing the page budget and publishing frequency. At the current rate of increase in terms of the number of high-quality manuscripts submitted to T-ITS, we must increase our page budget, as well as its frequency of publishing, e.g., from quarterly to bimonthly. An alternative is to cre-

ate a new Transactions for ITSS by splitting ITS research into two or more subfields, e.g., traffic versus vehicular research or methodology versus systems development and applications.

IV. FUTURE AND VISION

Currently, the traditional newspaper and magazine publishing industries are experiencing a major change, and we anticipate that a similar dramatic change of significant impact will come to the academic publishing model in the next few years, if not sooner. This is all due to the revolutionary social changes caused by the Internet and its new media techniques.

As has been noticed by many, newspapers, as we have known them for centuries, appear to be on the verge of disappearing or perhaps transforming into something very different, and these changes are characterized by a general public that has developed both a preference for receiving information online and an expectation that this content be available for free; even worse, how or why this has occurred or whether these are good or bad phenomena are debates that have become irrelevant to their consequences. Many of our members, particularly younger professionals, seem to prefer online content to print and are the driving force of the open-access movement, with an expectation that scientific content should be available at no cost. With T-ITS and IEEE publications in general, the problem is not yet imminent since we are fortunate that most of the content that we publish is provided to us free of charge by our volunteer contributors and, even more fortunately, that we do not need to directly deal with the financial consequences of our publication operations. However, we must realize that our world has been and is still changing, and we at the IEEE T-ITS must quickly act on those social and technical shifts to maintain our lead as a publisher of high-quality ITS papers and fulfill our promise to effectively serve our professionals.

Based on these considerations, we envision that the future of the T-ITS will evolve around the following directions:

- 1) extensive use of new media techniques;
- 2) T-ITS Social Networking and Publication 2.0;
- 3) integration of all ITSS publications and conferences;
- 4) outreach to other transportation organizations;
- 5) open-source platforms for testing, evaluation, and dissemination;
- 6) ITS 2.0, Transportation 2.0, Management 2.0, and beyond.

The effects of new social media and the emerging new lifestyles in a connected world full of real-time and on-demand information have very quickly converged into a “perfect storm” that will forever transform current academic publishing models into something that no one can predict at this moment. Some have viewed this as a serious threat to publication operations. However, we consider it to be a new opportunity for a revolutionary change that could catapult our T-ITS to a new level of quality, effectiveness, and influence. In this era of dynamic changes and fast development, we must quickly, deliberately, and intelligently move to realize our objective and effectively serve our professional communities.

With help from our authors, readers, AEs, reviewers, and participation in a Web 2.0+ fashion from members of professional communities, we are confident that the next decade of the IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS will be bright and successful.

FEI-YUE WANG, *Editor-in-Chief*
2009–Present

ALBERTO BROGGI, *Editor-in-Chief*
2004–2008

CHELSEA C. WHITE, *Editor-in-Chief*
2000–2003



Fei-Yue Wang (F'03) received the Ph.D. degree in electrical, computer, and systems engineering from Rensselaer Polytechnic Institute, Troy, NY, in 1990.

In 1990, he joined the University of Arizona, Tucson, where he became a Professor and the Director of the Program in Advanced Research for Complex Systems. Since 2002, he has been the Director of the Key Laboratory of Complex Systems and Intelligence Science, Chinese Academy of Sciences (CAS), Beijing, China. Currently, he is the Vice President of the Institute of Automation, CAS, and the Dean of School of Software Engineering, Xian Jiaotong University, Xi'an, China. He was Editor-in-Chief of the *International Journal of Intelligent Control and Systems* from 1995 to 2000 and *Series in Intelligent Control and Intelligent Automation* from 1996 to 2004.

Dr. Wang was the President of the IEEE Intelligent Transportation Society from 2005 to 2007, the President of the Chinese Association for Science and Technology (CAST) in 2005, and the President of the American Zhu Kezhen Education Foundation from 2007 to 2008. Currently, he is the Vice President and the Secretary-General of the Chinese Association of Automation. He is a member of Sigma Xi and an elected Fellow of the International Council on Systems Engineering, the International Federation of Automatic Control, the American Society of Mechanical Engineers (ASME), and the American Association for the Advancement of Science. In 2007, he received the Second-Class National Prize in Natural Sciences of China and the Outstanding Scientist Award from the Association of Computing Machinery (ACM) for his work in intelligent control and social computing. He was the Editor-in-Chief of the IEEE INTELLIGENT SYSTEMS from 2008 to 2009. Since 1997, he has served as the General or Program Chair of more than 20 IEEE, INFORMS, ACM, and ASME international conferences.



Alberto Broggi (S'89–S'93–A'96–SM'06) received the Dr.Eng. degree in electronic engineering and the Ph.D. degree in information technology from the Università di Parma, Parma, Italy, in 1990 and 1994, respectively.

He is currently with the Università di Parma, where he was an Associate Researcher with the Dipartimento di Ingegneria dell'Informazione from 1994 to 1998, an Associate Professor of artificial intelligence with the Dipartimento di Informatica e Sistemistica from 1998 to 2001, and is currently a Full Professor of computer science. He is the President and Chief Executive Officer of VisLab, a spin-off company of the University of Parma, working in the field of signal processing for vehicular applications. He is the author of more than 150 refereed publications in international journals, book chapters, and conference proceedings and has delivered invited talks at many international conferences. His research interests include real-time computer vision approaches for the navigation of unmanned vehicles and the development of low-cost computer systems to be used in autonomous agents.

Dr. Broggi was the Editor-in-Chief of the IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS from 2004 to 2008. He is a member of the IEEE Intelligent Transportation Systems Society Executive Committee as President Elect, becoming the President for the term 2010–2011.



Chelsea C. White (F'88) received the Ph.D. degree in computer, information, and control engineering from the University of Michigan (UM), Ann Arbor, in 1974.

He served on the faculties of the University of Virginia, Charlottesville, from 1976 to 1990 and UM from 1990 to 2001. He is currently with the Georgia Institute of Technology, Atlanta, where he is the School Chair of the H. Milton Stewart School of Industrial and Systems Engineering, the Schneider National Chair of Transportation and Logistics, the Director of the Trucking Industry Program, and the former Executive Director of the Logistics Institute. He serves on the boards of directors for Con-way, Inc. (NYSE: CNW), the ITS World Congress, TLI-Asia Pacific, and the Bobby Dodd Institute and is a former member of the board of ITS America (a Utilized Federal Advisory Committee). He has served as the ITS Series book editor for the Artech House Publishing Company. He is a coauthor (with A. P. Sage) of the second edition of *Optimum Systems Control* (Prentice-Hall, 1977), a coeditor (with D. E. Brown) of *Operations Research and Artificial Intelligence: Integration of Problem Solving Strategies* (Kluwer, 1990), and a coeditor

(with D. L. Belman) of *Trucking in the Information Age* (Ashgate, 2005). He has published primarily in the areas of the control of finite stochastic systems and knowledge-based decision support systems. He has been a keynote speaker at a variety of international conferences and meetings. He has made presentations at the Council on Competitiveness and the Brookings Institution, both of which were concerned with the impact of information technology on international freight distribution, security, and productivity. He has represented ITS America by providing testimony during a roundtable discussion entitled "Reauthorization of the Federal Surface Transportation Research Program," held by the U.S. Senate Committee on Environment and Public Works, and he has testified before the California Senate Committee on Transportation and Housing Public Hearing on ITS. His most recent research interests include analyzing the role of real-time information and enabling information technology for improved logistics and, more generally, supply-chain productivity and risk mitigation, with special focus on the U.S. trucking industry.

Dr. White is a Fellow of INFORMS, a former member of the Executive Board of the Council of Industrial Engineering Academic Department Heads (CIEADH), and the founding Chair of the IEEE Technical Activities Board Committee on Intelligent Transportation Systems (ITS) (now an IEEE Society). He received the Norbert Wiener Award in 1999 and the Joseph G. Wohl Outstanding Career Award in 2005, both from the IEEE Systems, Man, and Cybernetics (SMC) Society, and an IEEE Third Millennium Medal. The Norbert Wiener Award is the SMC's highest award recognizing lifetime contributions in research. He is the recipient of the 2008 IEEE ITSS ITS Outstanding Research Award for "significant contributions in research and development in global transportation and logistic systems." He is a former member of the World Economic Forum trade facilitation council. He was the President of the IEEE SMC Society from 1992 to 1993. He is a former Editor of the IEEE TRANSACTIONS ON SYSTEMS, MAN, AND CYBERNETICS—PARTS A AND C and was the founding Editor of the IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS.