

Guest Editorial

Developing and Improving Transportation Systems: The Structure and Operation of IEEE Intelligent Transportation Systems Society

Abstract—This editorial introduces the structure and operation of the IEEE Intelligent Transportation Systems Society (ITSS). A brief history of the ITSS is presented, along with its mission, organizational structure, and a recently approved plan to streamline its operation for various technical activities.

Index Terms— IEEE ITS Society, Intelligent Transportation Systems.

A BRIEF HISTORY OF THE IEEE INTELLIGENT TRANSPORTATION SYSTEMS SOCIETY

TRANSPORTATION systems are playing a critical role in virtually all facets of modern life. Significant challenges remain to further improve the efficiency and safety of the current transportation systems of all kinds and develop value-added applications closely tied into such systems. In the meanwhile, opportunities abound, largely due to fast-paced developments in a broad spectrum of related engineering, communications and information technology fields.

Since 1994, various IEEE organizations, including first the Ad Hoc Committee on Intelligent Transportation Systems (ITS) and then the ITS Council, were formed to explore, in a synergistic manner, the use of electrical and electronics engineering, systems and control engineering, and information technologies in ITS applications. In particular, various publication and technical activities under the sponsorship of the ITS Council, including the IEEE Transactions on ITS, the annual Conference series on ITS, and the annual Symposium on Intelligent Vehicles, have been very well-received and are making a positive impact on the related research and practitioner communities. As such communities have become mature and are experiencing steady growth, the IEEE Technical Activities Board approved the transition from the ITS Council to the IEEE ITS Society (ITSS) at the beginning of 2005. Since its inception, close to a thousand professionals have already joined the ITSS.

MISSION AND ORGANIZATION OF THE SOCIETY

According to the ITSS Constitution, the primary mission of the Society is to bring together the community of scientists and engineers who are interested in “theoretical, experimental and operational aspects of electrical and electronics engineering and

information technologies as applied to intelligent transportation systems,” and to advance the professional standing of the society members and affiliates. ITS are defined as “those systems utilizing synergistic technologies and systems engineering concepts to develop and improve transportation systems of all kinds.” The Society is “scientific, literary, and educational in character to provide a forum for the discussion and exchange of information to advance the theory, design, development, and application of ITS.”

The administration and organization of the ITSS are governed by the Society Constitution and Bylaws, both available from the ITSS website: www.ewh.ieee.org/tc/its/. Next, we highlight the related major items.

- The Society shall be governed by a Board of Governors (BOG). There shall be at most 24 voting members of the BOG, consisting of an Executive Committee and 15 Members elected from the Society membership. The Executive Committee, chaired by the President, is concerned with the day-to-day operation of the Society. The voting member of this committee includes President, President-Elect (in odd-numbered years), Past President (in even-numbered years), VP for Financial Activities, VP for Conference Activities, VP for Publication Activities, VP for Technical Activities, VP for Member Activities, VP for Administrative Activities, and Editor-in-Chief of the IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS.
- The terms of office of the 15 elected Members of the BOG shall be three years, with 5 Members to be elected each year. At the beginning of each year, a Nominations Committee shall be appointed. The chair of this Committee shall cause a call for nominations of elected members of the BOG to be publicized to the entire Society membership. All members, except members of the Nominations Committee, of the Society in good standing are eligible to be nominated and to be elected to the BOG. Recommendations shall also be solicited from the Chairs of all chapters, Standing and Technical Committees of the Society. Nominations shall be finalized and a ballot shall be mailed to each Member of the Society through the IEEE. IEEE shall transmit the results of the election to the Society President and Secretary. Society Officers shall be elected by the current sitting members of the BOG in their annual meeting. The Chair of the Nominations Committee shall call for nominations. Recommendations shall be solicited from BOG members, Editors-in-Chief, and chairs of all

Chapters, Standing and Technical Committees. Additional nomination from the floor at the BOG meeting may also be considered.

- The Society must hold an Annual Meeting. Additional meetings of the Society, represented by the BOG, may be held at such times as are found necessary or convenient. Business of the Society may be transacted by correspondence or other telecommunication means where, in the opinion of the President, matters requiring action can be adequately handled in that matter. The Executive Committee shall be the principal body for dealing with such informal matters.
- The Society may hold technical meeting, conferences, lecture series, symposia, or convention either alone or in cooperation with other IEEE committees or other technical organizations, with IEEE approval. The Society shall sponsor or cosponsor at least one technical conference of international scope each year. The BOG determines the time, location and Chair of each sponsored Conference and technical meetings, based on submittal by the Conferences and Meetings Committee.
- All Society publication activities are subject to IEEE policies, and to any further guidance or controls prescribed by the BOG or its duly appointed committees. The Editors-in-Chief of the Society's publications shall be nominated by the Nominations and Appointments Committee, or by an Ad Hoc Committee. The Editors-in-Chief may recommend appropriate associate or guest editors. Appointments shall be made by the Society President with approval of the BOG.

TECHNICAL, CONFERENCE, AND PUBLICATION ACTIVITY HIGHLIGHTS

As a new IEEE Society formed less than a year ago, the ITSS is an infant organization. However, the core research community behind the ITSS and its predecessor organizations is well-established and mature. As its flagship journal, the IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS, now in its fifth year of production, is widely accepted as a top-tier publication in the ITS field. The ITS Society Newsletter has been in production for even longer and has become a timely dissemination channel of various kinds of ITS technical information and community activities with its large circulation. The Society now sponsors or cosponsors a number of ITS-related premier academic conference series including: International IEEE Conference on ITS, IEEE Intelligent Vehicles Symposium, IEEE International Conference on Intelligence and Security Informatics, and IEEE International Conference on Vehicular Electronics and Safety.

To tackle the issues associated with the increasingly expanding topic coverage of ITS-related research, the growing number of technical conferences under the ITSS sponsorship, and the resulting increased topic variety in submissions to these conferences and the Transactions on ITS, the Society is planning to implement a new technical activity board (TAB) structure under the leadership of the VP for Technical Activities in close collaboration with the VP for Conference Activities

and the VP for Publication Activities. (This new structure was initiated by the past VP for Technical Activities, Prof. Stefano Stramigioli.) Under this structure, a number of technical committees will be formed based on subject topics. Each technical committee will have a chair and formal members with appointment of at least two years. Technical committee chairs are expected to promote certain areas of ITS research by organizing special sessions at the Society-sponsored conferences or editing special sections for the Transactions and the Newsletter. Each technical committee chair is also expected to identify a small number of motivated experts to be involved in a centrally managed international conference program committee, which provides pools of reviewers for ITS-sponsored conferences for quality and timely reviews.

ROADS AHEAD AND CONCLUDING REMARKS

Building on the momentum of past ITS technical and community activities, in the years to come, the ITSS is aimed at expanding its membership, solidifying its position as the premium ITS research society, and raising its visibility in the general research and engineering communities, in government and policy-making bodies, and in industry.

ITS is a dynamic field of study with many new opportunities and emerging research topics. To name a couple of examples, applying cutting-edge information technologies including those involving data mining and complex systems analysis in various ITS subdisciplines has shown great promise; infrastructure protection and security-related issues in the ITS context are also attracting increasing attention.

It is an exciting time to be an ITS researcher and practitioner. The ITSS is uniquely positioned to grow and will continue to actively sponsor activities beneficial to ITS researchers and practitioners. If you are already a member of the ITSS, welcome aboard. If you are not, we sincerely invite you to join us for an exciting journey.

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Currently, he is the Director of the Program for Advanced Research in Complex Systems at the University of Arizona, Tucson, where he has been since 1990. He became a Full Professor of Systems and Industrial Engineering at the University of Arizona in 1999. In 1999, he found the Intelligent Control and Systems Engineering Center at the Institute of Automation, Chinese Academy of Sciences, Beijing, China, under the support of the Outstanding Oversea Chinese Talents Program. Since 2002, he has been the Director of the Key Laboratory of Complex Systems and Intelligence Science at the Chinese Academy of Sciences. His current research interests include modeling, analysis, and control mechanism of complex systems; agent-based control systems; intelligent control systems; real-time embedded systems, application specific operating

systems (ASOS); applications in intelligent transportation systems, intelligent vehicles and telematics, web caching and service caching, smart appliances and home systems, and network-based automation systems. He has published more than 200 books, book chapters, and papers in those areas since 1984 and received more than USD 20M and RMB 50M from NSF, DOE, DOT, NNSF, CAS, Caterpillar, IBM, HP, AT&T, GM, BHP, RVSI, ABB, and Kelon.

Dr. Wang received the Caterpillar Research Invention Award with Dr. P. J. A. Lever in 1996 for his work in robotic excavation and the National Outstanding Young Scientist Research Award from the National Natural Science Foundation of China in 2001, as well as various industrial awards for his applied research from major corporations. He was the Editor-in-Chief of the *International Journal of Intelligent Control and Systems* from 1995 to 2000, and currently is the Editor-in-Charge of *Series in Intelligent Control and Intelligent Automation*, Editor for the *ITS Department of the IEEE Intelligent Systems*, and an Associate Editor of the IEEE TRANSACTIONS ON SYSTEMS, MAN, AND CYBERNETICS, IEEE TRANSACTIONS ON ROBOTICS AND AUTOMATION, IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS, and several other international journals. He is President Elect of IEEE ITS Society and an elected member of IEEE SMC Board of Governors. He was the Program Chair of the 1998 IEEE International Symposium on Intelligent Control, the 2001 IEEE International Conference on Systems, Man, and Cybernetics, the General Chair of the 2003 IEEE International Conference on Intelligent Transportation Systems, the Co-Program Chair of the 2004 IEEE International Symposium on Intelligent Vehicles, and the General Chair for the 2005 IEEE International Symposium on Intelligent Vehicles. He was the Vice President and one of the major contributors of the American Zhu Kezhen Education Foundation. He is also the 2005 President of the Chinese Association for Science and Technology, USA, and a member of the Boards of Directors of five companies in information technology and automation.



Charles Herget (M'59–SM'86–LS'03) received the B.S., M.S., and Ph.D. degrees in engineering from the University of California, Los Angeles, in 1959, 1965, and 1967, respectively.

He was employed at the Hughes Aircraft Company, Culver City, California, from 1959 to 1967; the Department of Electrical Engineering, Iowa State University, Ames, Iowa, from 1967 to 1978; and Lawrence Livermore National Laboratory, Livermore, California, from 1978 to 1993. Since 1993, he has been a consultant with Herget Associates, Alameda, California. He has been the coauthor or coeditor of three books and author or coauthor of over 50 publications in transactions and conference proceedings.

Dr. Herget has served on many professional activities with IEEE, including General Chair of the IEEE Conference on Decision and Control, Honolulu, Hawaii, in 1990; President, IEEE Control Systems Society, in 1993; Secretary, IEEE Council on Intelligent Transportation Systems, from 2001 to 2002; President, IEEE Council on Intelligent Transportation Systems, in 2003–2004, and President, IEEE Intelligent Transportation Systems Society, 2005. His activities in Intelligent

Transportation Systems have included serving as Program Manager for IEEE Standards on ITS for the US Department of Transportation. The standards for which he initiated working groups included Message Sets for Dedicated Short Range Communications (P1455), a Data Dictionary for ITS (P1489), and Message Sets for Incident Management (P1512).



Daniel Zeng (M'04) received the M.S. and Ph.D. degrees in industrial administration from Carnegie Mellon University, Pittsburgh, PA, in 1994 and 1998, respectively, and the B.S. degree in economics and operations research from the University of Science and Technology of China, Hefei, China, in 1990.

Currently, he is an Associate Professor in the Department of Management Information Systems at the University of Arizona. He is currently directing four National Science Foundation (NSF)-funded research projects as PI or co-PI. His research interests include intelligence and security informatics, multi-agent systems, distributed optimization, computational support for auctions and negotiations, intelligent information integration and caching, and recommender systems. He has coedited four books and published about 60 peer-reviewed articles in management information systems and computer science and engineering journals, edited books, and conference proceedings.

Dr. Zeng served as conference or program co-chair for the first three Intelligence and Security Informatics conferences (ISI-2003, ISI-2004, ISI-2005). He is a member of INFORMS, AAAI, and ACM, and serves on the editorial board of *Decision Support Systems*, *Journal of Database Management*, and *International Journal of Intelligent Information Technologies*. He is the VP for Technical Activities of the IEEE ITS Society. He is also the VP for Technical Activities of the Chinese Association for Science and Technology, USA.