Vol. 1, No. 2, April 1999

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Contributors to This Issue

ITS Council Executive Committee
- President ....................................................... Prof. Ümit Özgüner
  u.ozguner@ieee.org
- Vice President ................................................ Dr. Ichiro Masaki
  i.masaki@ieee.org
- Secretary ....................................................... Ms. Emily Sekersky
  e.spenak@ieee.org
- Treasurer ....................................................... Prof. Richard Klafter
  r.klafter@ieee.org

ITS Council Committee Chairs
- Conferences and Meetings Comm. .............. Ichiro Masaki, i.masaki@ieee.org
- Finance Comm. ............................................ Richard Klafter, r.klafter@ieee.org
- Nominations and Appointments Comm. ... Rye Case, r.case@ieee.org
- Publications Comm. ................................. Daniel J. Dailey, d.dailey@ieee.org
- Publicity and Outreach Comm. ............... Robert French, r.french@ieee.org
- Long Term Planning Comm. ................. Charles Herget, c.herget@ieee.org

Information for contributors
Announcements, feature articles, books and meetings reviews, opinions, letters to the editor, professional activities, abstracts of reports, and other material of interest to the ITS community is solicited.
Please submit electronic material for consideration in any of the following formats: \LaTeX, plain ASCII, or Word, to the Editor at a.broggi@ieee.org at least 1 month prior to the newsletter's distribution:

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<tr>
<td>Prof. Ümit Özgüner</td>
<td>Dr. Ichiro Masaki</td>
<td>Ms. Emily Sopensky</td>
<td>Prof. Richard Klafer</td>
</tr>
<tr>
<td>Dept. of Electrical Engineering</td>
<td>Room 38-107, MIT</td>
<td>The Iris Company</td>
<td>Temple University</td>
</tr>
<tr>
<td>Ohio State University</td>
<td>50 Vassar Street</td>
<td>923 E. 39th Street</td>
<td>Philadelphia, PA</td>
</tr>
<tr>
<td>2015 Neil Avenue</td>
<td>Cambridge, MA (617)</td>
<td>Austin, TX 78751</td>
<td>USA</td>
</tr>
<tr>
<td>Columbus, OH 43210</td>
<td>(617) 253-8532 (O)</td>
<td>(512) 452-2448 (O)</td>
<td>(215) 204-4523 (O)</td>
</tr>
<tr>
<td>(614) 292-5940 (O)</td>
<td>(617) 292-7334 (Fax)</td>
<td>(512) 452-8958 (Fax)</td>
<td>(215) 204-5690 (Fax)</td>
</tr>
<tr>
<td><a href="mailto:u.ozguner@ieee.org">u.ozguner@ieee.org</a></td>
<td><a href="mailto:e.masaki@ieee.org">e.masaki@ieee.org</a></td>
<td><a href="mailto:e.sopensky@ieee.org">e.sopensky@ieee.org</a></td>
<td><a href="mailto:r.klafer@ieee.org">r.klafer@ieee.org</a></td>
</tr>
</tbody>
</table>

#### Conferences and Meetings Committee (itsc99conf@ieee.org):

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- Yoichi Sato
- Shigeru Wako
- Masaaki Aoki
- Emi Sopensky
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- Chuck Thorpe
- Teruo Yamachi
- Dan Dailey
- Myron Kayton
- Ed Rezek
- Tsuneo Takahashi
- Jim Billings
- Pravin Varaiya

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- Dan Dailey
- Myron Kayton
- Bill Scherer

#### Nominations and Appointments Committee (itsc99na@ieee.org):

- Rye Case, Chair
- Micha Avni
- Toshio Fukuda
- Ed Rezek
- Tsuneo Takahashi

#### Publications Committee (itsc99pubs@ieee.org):

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- Hidoki Hashimoto
- Ichiro Masaki
- Roger Pollard
- Ivan Zhao
- Alberto Broggi
- Charles Hanover
- Bud Trapp
- Myron Kayton

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- Robert Gottschalk, Chair
- Rye Case
- Dan Dailey
- Thomas M. Kurihara
- Yilin Zhao

#### Publicity and Outreach Committee (itspr@ieee.org):

- Emily Sopensky, Chair
- Dan Dailey
- Robert French

#### Long Term Planning Committee (itspr@ieee.org):

- Charles Herget, Chair
- Micha Avni
- Rye Case
- Toshio Fukuda
- Myron Kayton
- Tsuneo Takahashi

#### World Congress Liaison:

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From the Editor
by Alberto Broggi

Dear ITS Researcher,

three months have passed since the first issue of this Newsletter was published and distributed. During this time I received a large number of queries, suggestions, and constructive comments from people who received the first issue.

As you may have noticed, from this issue onward you will receive only a brief message in your e-mail, indicating that the new Newsletter issue has been published, as well as a web pointer (URL) to the site where you can point your browser and download it. The Newsletter is available in plain ASCII text, Postscript, and Adobe PDF.

The current issue contains information about journals, conferences, workshops in the ITS field, and some contributed announcements.

Thanks to an agreement with Prof. Chelsea C. White (IEEE Transactions on Intelligent Transportation Systems Editor), from next issues you will also find the abstracts of papers that have been submitted to the newly formed IEEE Transactions on ITS.

Once again, I would like to encourage you to send me (by e-mail at a.broggi@ieee.org) your possible contributions and your suggestions to make the newsletter more and more interesting and better focused.

Calendar of Council Events

Council Meetings:

The last meeting of the IEEE TAB ITS Committee was held on Saturday, November 14, 1998 at the Hyatt Regency in New Brunswick, NJ with the IEEE TAB meeting. Next Meetings are scheduled as follows:

Council Meetings:

June 26, 1999, 5:30pm-9:30pm ... Seaport Hotel & Convention Center, Boston, MA
during the TAB Board series

November 13, 1999 ...................... Little America Hotel, Salt Lake City, UT
during the TAB Board series
ITSC Officers Meetings:

October 8, 1999 .......................... Waseda University Tokyo, Japan during the ITSC99 Conference

ITSC Committee Meetings:

June 26, 1999, 2pm-5pm ........ Seaport Hotel & Convention Center, Boston, MA during the TAB Board series (Publications, Finance, and Meetings and Conferences Committees)

Other Meetings:

October 5-8, 1999 ............. Waseda University, Conference Center, Tokyo, Japan ITSC99 Conference, www.cvl.iis.u-tokyo.ac.jp/itsc99

November 8-12, 1999 .......... Metro Toronto Convention Centre, Toronto, Canada ITS World Congress, www.itsworldcongress.org

IEEE Transactions on Intelligent Transportation Systems

by Chip White

IEEE Transactions on Intelligent Transportation Systems

Call for Papers

The IEEE Intelligent Transportation Systems Council (ITSC) announces a new transactions journal, the IEEE Transactions on Intelligent Transportation Systems. The first quarterly issue will appear in March 2000.

Improved planning, design, management, and control of future transportation systems requires conducting both basic and applied research to expand the knowledge base on transportation. The new IEEE Transactions on ITS will focus on the design, analysis, and control of information technology as it is applied to transportation systems. Topics to be considered will include, but will not be limited to:

- Sensors (infrastructure & vehicle-based)
- Communications (wide area & vehicle-to-roadside)
- Man-Machine Interfaces (displays, artificial speech)
- Decision Systems (expert systems, intelligent agents)
- Simulation (continuous, discrete, real-time)
- Reliability & Quality Assurance
- Imaging and Image Analysis
- Information Systems (databases, data fusion, security)
- Computers (hardware, software)
- Control (adaptive, fuzzy, cooperative, neuro, large systems)
- Technology Forecasting & Transfer
- Systems (engineering, architecture, evaluation)
- Signal Processing
- Standards.

Transportation systems are usually large-scale in nature and are invariably geographically distributed. The complexity of transportation systems arises from many sources. Transportation systems can involve humans, vehicles, shipments, information technology, and the physical infrastructure—all interacting in complex ways. Many aspects of transportation systems are uncertain, dynamic and nonlinear, and such systems may be highly sensitive to perturbations. Controls can involve multiple agents that are distributed and hierarchical. Personnel who invariably play critical roles in a transportation system have a diversity of objectives and a wide range of skills and education.

Despite such complexity, the emergence of new technologies—such as sensors, communications, low-cost, faster computation, and new control and optimization algorithms—provides new opportunities to substantially improve efficiency, safety and environmental impact. With the use of these technologies, new and faster measurements are possible and more data can be managed and processed. Additionally, new strategies for management and control will be developed to deal with both the static and the dynamic nature of transportation systems. So, while most of the classical transportation problems raised in the past continue to exist, there now are new approaches with which to contend.

The intent of the IEEE Transactions on ITS will be to serve as a forum for the technological aspects of information technology to transportation, thus providing researchers with an outlet for publication.

For further publication guidelines, contact the editor at ccwiii@umich.edu or by call 734-764-5723. Please send five (5) copies of your manuscript for possible publication to:

Chelsea C. White, III, Editor
Department of Industrial and Operations Engineering, College of Engineering
University of Michigan
Ann Arbor, Michigan 48109-2117 USA

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Special Issue of IEEE Transactions on ITS

by Harris McClamroch

IEEE Transactions on Intelligent Transportation Systems
Special Issue on Automated Air Traffic Control Systems

Special Issue Editors:

N. Harris McClamroch
Department of Aerospace Engineering
The University of Michigan
Ann Arbor, MI 48109-2140
(734) 763-2355
nhm@engin.umich.edu

Banavar Sridhar
NASA Ames Research Center
Chief, Automation Concepts Research Branch
Mail Stop 210-10, Moffett Field, CA 94035-1000
(650) 604-5450
bsridhar@mail.arc.nasa.gov
Scope of the Special Issue: All operational aspects of automated air traffic control systems; the objective of the special issue is to assess the state of the art in automation tools and concepts and to identify promising research areas to design a safer and more efficient air traffic control system.

Goals of the Special Issue:

- identify important domains where air traffic control automation can make a difference
- survey range of potential automation tools and concepts for air traffic control systems
- assess knowledge base in automated air traffic control systems
- identify future research opportunities and needs in automatic air traffic control systems

Submission Details:

- Submission deadline: January 1, 2000
- Acceptance notification: September 1, 2000
- Publication in 2001

All papers will be refereed according to standard procedures for IEEE Transactions. Reviews will be obtained and publication decisions will be made by the editors. Papers submitted to the special issue should be prepared according to IEEE standards, and six copies should be mailed before the above date to N. Harris McClure at the above address.

Themes:

The editors are especially interested in papers that address the following topics:

- automated air space
- control towers
- terminal centers
- enroute centers
- automated scheduling
- route optimization
- conflict detection and resolution
- free flight paradigm
- strategic management of air space resources
- strategic management of airline fleet operations
- mitigation of disruptions resulting from severe weather
- mitigation of congestion effects in busy terminal areas
- air traffic control models
- hierarchy of models
- modeling to translate field tests to national benefits
- models for prediction of controller workload
- models including human and automation effects
- weather models
- performance metrics for air traffic systems
- safety
• efficient use of the airspace
• satisfying user preferences
• perspectives on automation from point of view of user groups
• pilots
• air traffic controllers
• airlines
• general aviation users
• systems engineering support for automated air traffic control systems
• communications, navigation, and surveillance
• ATM real-time infrastructure
• performance and safety
• evolution and modernization of the air traffic system

Preliminary Announcements for ITSC-sponsored Conferences
by Alberto Broggi and Toshio Fukuda

ITSC 2000
The 3rd Annual IEEE Conference on Intelligent Transportation Systems
The Ritz-Carlton Hotel, Dearborn, MI, USA
October 1-3, 2000

The IEEE Intelligent Transportation System (ITS) Council is sponsoring a professional-level conference on basic research and present and future application of leading-edge advances in communications, computers, control and related electronics-based technologies to Intelligent Transportation Systems (ITS).

The IEEE Intelligent Vehicles Symposium (IEEE IV) will be held at the same location on Oct. 4-5, 2000, and a single–reduced rate–registration option will be available for both Conferences, as well as individual registrations.

Paper submission deadline .................. March 1, 2000
Notification of acceptance .................... May 1, 2000
Camera-ready copy due ..................... July 1, 2000

All Correspondences should be addressed to:

Prof. Toshio Fukuda, General Chair, ITSC-2000
Center for Cooperative Research in Advanced Science and Technology
Nagoya University
Furo-cho, Chikusa-ku, Nagoya 464-8603, JAPAN
Tel: +81-52-789-4478, Fax: +81-52-789-3909
E-mail: itsc2k@mein.nagoya-u.ac.jp
Conference Organizing Committee:

General Chair: Prof. Toshiio Fukuda, Nagoya Univ.  
Program Chair: Prof. Petros Ioannou, Univ. of South California  
Treasurer: Prof. Richard Klafter, Temple Univ.  
Local Arrangement Chair: Prof. Ka C. Cheok, Oakland Univ.  
Tutorial/Workshop Chair: Prof. Daniel Dailey, Univ. of Washington  
Publicity Chair: Dr. Alberto Broggi, Univ. of Pavia  
Conference Secretary: Dr. Hidenori Ishihara, Nagoya Univ.

_______________________________

IV 2000  
IEEE Intelligent Vehicles Symposium 2000  
The Ritz-Carlton Hotel, Dearborn, MI, USA  
October 4-5, 2000

The Intelligent Vehicles Symposium, sponsored by the IEEE Intelligent Transportation System Council (ITSC), deals with research on applications for Intelligent Vehicles and Intelligent Infrastructures. It is characterized by a single session format so that all the attendees remain in a single room for multilateral communications in an informal atmosphere. As another tradition, the meetings have enthusiastic participation from industry, as well as research centers and universities.

The IEEE Conference on Intelligent Transportation Systems (ITS) will be held at the same location on Oct. 1-3, 2000, and a single-reduced rate-registration option will be available for both Conferences, as well as individual registrations.

Papers due for peer review ..................... March 1, 2000  
Notification of acceptance ..................... May 1, 2000  
Camera-ready copy for proceedings due ............. July 1, 2000

Please refer frequently to the conference website http://www.ce.unipv.it/iv2000 for the most up-to-date information, or contact the General Chair (Jim Rillings, jimrilling@notes.gmr.com) or the Program Chair (Alberto Broggi, broggi@dis.unipv.it).

Conference Organizing Committee:

General Chair: Jim Rillings, General Motors (USA)  
Program Chair: Alberto Broggi, University of Pavia (Italy)  
Program Co-Chairs: Richard Bishop, Richard Bishop Consulting (USA)  
Katsu Ikeuchi, University of Tokyo (Japan)  
Michel Parent, INRIA (France)  
Advisory Chair: Ichiro Masaki, MIT (USA)  
Publicity Chair: Alessandra Fascoli, University of Parma (Italy)  
Treasurer: Richard Klafter, Temple University (USA)
Call for Participation - ITSC’99 Conference

by Yoichi Sato

IEEE/IEEJ/JSAI Conference on Intelligent Transportation Systems (ITSC99)

Call for Participation

Tokyo, Japan
October 3-8, 1999
http://www.cvl.iis.u-tokyo.ac.jp/itsc99/

The Institute of Electrical and Electronics Engineers (IEEE), The Institute of Electrical Engineers of Japan (IEEJ), Japanese Society of Artificial Intelligence (JSAI), and an alliance of Japanese governmental organizations are jointly sponsoring a professional-level conference on basic research and present and future application of leading-edge advances in communications, computers, control and related electronics-based technologies to Intelligent Transportation Systems (ITS).

Program Topics

- Sensors (infrastructure & vehicle-based)
- Communications (wide area & vehicle-to-roadside)
- Man-machine Interfaces (displays, artificial speech,...)
- Decision Systems (expert systems, intelligent agents,...)
- Simulation (continuous, discrete, real-time)
- Reliability & Quality Assurance
- Imaging and Image Analysis
- Information Systems (databases, data fusion, security)
- Computers (hardware, software)
- Control (adaptive, fuzzy, cooperative, neuro, large systems)
- Technology Forecasting & Transfer
- Systems (engineering, architecture, evaluation)
- Signal Processing
- Standards

Supporting Organizations

- Advanced Cruise Assist Highway System Research Association
- Express Highway Research Foundation of Japan
- Information Processing Society of Japan
- The Institute of Electronics, Information and Communication Engineers
- International Association of Traffic and Safety Sciences
• Japan Society of Civil Engineers
• The Japan Society of Mechanical Engineers
• Japan Society of Traffic Engineers
• Japanese Traffic Management Technology Association
• The Robotics Society of Japan
• Society of Automotive Engineers of Japan
• The Society of Instrument and Control Engineers
• Universal Traffic Management Society of Japan
• Vehicle, Road and Traffic Intelligence Society

**ITS Council Standards Committee Mid-Year Report**

*by Robert Gottschalk*

The ITS standards are being developed under the Standards Coordinating Committee 32 (SCC32). The SCC32 holds monthly teleconferences and completed its 1999 annual meeting in Washington, DC, during the Intelligent Transportation Society of America (ITS America) annual meeting. Robert L. Gottschalk, SCC32 Chair, reviewed the status of the standards projects, identified SCC32 objectives, and minutes of the meeting will be posted to the following URL: http://grouper.ieee.org/groups/sec32/index.html

The Draft Standard for Dedicated Short Range Communications Applications for Intelligent Transportation Systems, P1455, has been completed, passed sponsor ballot, and has been forwarded to the SA Standards Board for approval at its June meeting. This Standard specifies an overall structure for DSRC. It is anticipated that individual user agencies will select specific components of this Standard to implement their systems. For example, the user agencies may select specific messages from Section 8. To achieve interoperability, it is essential that the user agencies negotiate institutional agreements that coordinate their designs.

Draft Standard for Data Dictionaries for Intelligent Transportation Systems, P1489 - Part 1: Functional Area Data Dictionaries has been completed, passed sponsor ballot, and has been forwarded to the SA Standards Board for approval at its June meeting. This standard addresses the concepts of data dictionaries as applied to Intelligent Transportation Systems (ITS). The ITS standards program has categorized this standard as a "foundation standard." It describes the set of data concepts and meta-attributes used to define, characterize, and manage the contents of all ITS data dictionaries.

The IEEE Guide for Microwave Communications System Development: Design, Procurement, Construction, Maintenance, and Operation, IEEE 1404:1998, was approved and published in July 1998. This guide is the product of an IEEE SCC32 working group and provides guidance in developing a terrestrial microwave system. Steps for a variety of applications have been included in this guide. Users may select from those steps that apply to their particular environment, system, and procurement process.

New projects for which volunteer participants are sought include:

• The Dedicated Short-Range Communications Applications for ITS; Resource Manager for Back Office Applications, P1543. This project defines and describes the resource manager functions and handling of DSRC messages and its data contents.
• The Dedicated Short-Range Communications Applications for ITS; Security and Smart Card Interfaces, Pxxx. This project defines and describes the interaction of the DSRC security and privacy functions with all other areas of the ITS using DSRC capabilities.
Anyone interested in participating in the work of any of the standards working group is invited to contact the R. L. Gottschalk, SCC32 Chair. r.l.gottschalk@ieee.org

The Intelligent Transportation Society of America, under an agreement with the U.S. Department of Transportation ITS Joint Program Office, is drafting the National Intelligent Transportation Systems Deployment Strategy. The deployment strategy document is part of the National ITS Program Plan includes the five-year federal ITS implementation plan and the ten-year ITS research agenda. The public review and comment draft is scheduled to be available in June 1999, and publication is scheduled for February 2000. Check any of the following URLs to stay in touch and get involved.
http://www.its.dot.gov/standard/standard.htm,
http://www.itsa.org/standards.html, or
http://groupur.ieee.org/group/scc32/index.html

The Sixth ITS World Congress is being co-hosted by ITS America and ITS Canada, Toronto, Ontario, Canada, November 8-12, 1999. URL: http://www.itsworldcongress.org

ITS America Standards and Protocol Committee has inherited the ITS Interoperability Subcommittee, revitalized and chaired by Dick Schnacke, Intermet/Amttech Systems Division. The working definition of interoperability is "the ability of systems to provide services and accept services from other systems and to use the services so exchanged to enable them to operate effectively together." The goal is to understand and describe the standardized interface definitions required for interoperability at the technical (equipment), procedural (information), and institutional (relationship) types. A workshop is scheduled for June, initial guidelines are planned for publication in September and a review of the top-6 issue list will be presented at the committee meeting scheduled for October. Check the ITS America URL for more details.

Rail Transit Standards Activities Now Underway
by Tom McGean

In January 1996, the Transportation Cooperative Research Program (TCRP) launched a project to develop standards for rail transit vehicles using the consensus standards process of the Institute of Electrical and Electronics Engineers (IEEE). The standards are sponsored by the IEEE Rail Transit Vehicle Interface Standards Committee (RTVISC), chaired by Tom McGean. After three years hard work by eleven working groups and over 250 professionals, four standards have been successfully balloted and IEEE rail transit vehicle standards are now a reality.

IEEE Std 1477-1998, Standard for Passenger Information System for Rail Transit Vehicles, chaired by Lance Cooper, Senior Manager of Rail Operations Support for the Washington Metropolitan Area Transit Authority, has been published. Final approvals have been received for IEEE 1473, Standard for Communications Protocol Aboard Trains, which will establish a standard communications protocol for the rapid transit industry, and IEEE 1475 Standard for the Functioning of and Interfaces among Propulsion, Friction Brake, and Train borne Master Control on Rail Rapid Transit Vehicles. IEEE 1473 is led by Bob Anderson, a manager at Harmon Industries and IEEE 1475 by Dave Phelps, Manager of Rail Programs for the American Public Transit Association. IEEE 1482.1, Standard for Rail Transit Vehicle Event Recorder, chaired by Linda Sue Boehmer, has been successfully balloted and is being submitted to IEEE for final approval. Its importance has been underscored by the National Transportation Safety Board which identified a vehicle event recorder as the single most needed transit safety improvement. Additional standards activities are also underway. The committee is currently balloting a performance standard for new communications based train control systems and standards for software safety verification and auxiliary power systems will be going to ballot shortly.

Many of the committee’s standards are related to microprocessor communications. Coordination of
these activities with the Intelligent Transportation System initiative is the responsibility of the IEEE’s Standards Coordinating Committee SCC32, chaired by Robert Gottschalk. The National Transportation Communication Interface Profiles project has assigned the committee responsibility for developing TCIP message sets for rail transit vehicles. The IEEE has approved a committee sponsored project to develop a standard in this area which will be led by Rob McHugh of BC Transit.

On July 17, 1998 a parallel effort was launched to develop mechanical rail transit standards through the American Society of Mechanical Engineers (ASME). The first activity of this group, led by Stan Canjea of New Jersey Transit, will be to develop new crashworthiness standards for light rail cars. Together, the IEEE and ASME standards activities provide the institutional framework to undertake any needed rail transit vehicle standardization using American National Standards Institute (ANSI) accredited consensus standards organizations.

The committee maintains a website at www.tsd.org, where meetings are announced and draft standards are available for downloading.
The VISTA Project

by Fei-Yue Wang and Pitu Mirchandani

VISTA Project at the University of Arizona

Fei-Yue Wang and Pitu Mirchandani
Systems and Industrial Engineering Department
University of Arizona, Tucson, AZ 85721, USA
Emails: feiyue@sie.arizona.edu and pitu@sie.arizona.edu

VISTA (Vehicles with Intelligent Systems for Transport Automation) Project was sponsored by the Arizona State Legislature and Arizona Department of Transportation in 1998 for research in Intelligent Vehicles and Automated Highway Systems. The project is administrated by the Advanced Transportation and Logistics Algorithms and Systems (ATLAS) Research Center and is a joint venture by the University of Arizona and Arizona State University. The mission of VISTA Project is to develop an affordable intelligent vehicle that can be deployable within the next 5-10 years. Specifically, this intelligent vehicle is designed to be used for the proposed Intelligent Express Lanes (IXL) on the Interstate Highway I-10 Corridor between Phoenix and Tucson. I-10 supports much cross commuting between Phoenix (population 2.6 million) and Tucson (700,000). It carries 8000 to 10,000 heavy trucks/day and has a relatively high incidence of run-off-the-road crashes that appear to result from drivers losing concentration or falling asleep at the wheel. It is proposed to expand the I-10 from the current 2x2 lane motorways to 2x3 lanes initially and later to 2x4 lanes. This expansion will offer a unique opportunity for the VISTA Project.

The other objectives of the VISTA Project are: (1) the additional infrastructure required on the corridor should be minimal, (2) the intelligent vehicle and the automated highway system should be robust and reliable, and (3) defined measures of effectiveness (travel time, safety, cost, and energy consumption, etc) should be specified and optimized.

Currently, VISTA is focused on the use of a hierarchical control platform that requires less frequent, and less spatially dense, communication among the road, traffic operations center and the vehicles, and requires less computational effort for lateral and longitudinal control of the vehicle on the highway. To this end, a combination of long-range and short-range sensing strategies has been adopted by the VISTA Project for establishing vehicle position and implementing feedback control.

On March 22, 1999, the VISTA team has successfully conducted its initial demonstration to the members of its Technical Advisory Committee. A full demonstration is scheduled for later in April 27, 1999 on Highway 51 in Phoenix, Arizona.
The TRAPRIO Project

by Anders Hauch

TRAPRIO: Traffic Light Priority for buses and emergency vehicles in Kolding, Denmark

Kolding city in Denmark is testing a new technology to avoid buses and emergency vehicles being delayed at traffic light intersections.

Recent development within telematics has made it possible to control and ease traffic flow better and more individually than was possible just a few years ago. Based on this the Technical Committee in Kolding County, on January 21, 1997, approved an agreement to participate with Traffic Supervision Systems A/S in a EUREKA development project, TRAPRIO. The objective of the project is to utilise new RFID technology to position buses and emergency vehicles, with the purpose of providing traffic light priority to vehicles in relevant traffic light intersections.

As EUREKA projects have to involve at least two EU countries, the TRAPRIO project in Kolding is progressing in parallel with similar projects in Maidstone, Kent and in Exeter, Devon, UK.

In Kolding the following parties participate in the project: Traffic Supervision Systems A/S (technology provider), Kolding County Technical Administration, The Emergency Administration, Falck A/S (private emergency vehicle operator), Vejle District Area Traffic Administration and COMBUS (private bus operator).

According to the chairman of the Technical Committee in Kolding County, Iver Schriver, providing priority to buses and emergency vehicles at traffic light intersections improves the traffic flow. Emergency vehicles are granted unconditional priority, while buses are granted priority, only if delayed.

Technically the system functions with an Automatic Vehicle Locator (AVL) System, which positions the vehicles based on batteryless tags embedded in the road and signals from the vehicle’s odometer. Tag reading equipment installed underneath the vehicles read the ID codes in the tags and transmits these, together with odometer readings, to a main station. The main station registers vehicle type, decides priority for buses in accordance with timetables and sends a priority request to the individual traffic light controllers at each relevant traffic light intersection.

Depending on when the priority request is received, the traffic light controller decides whether priority should be granted by extending an already existing green light, or whether the green light at the “hostile” direction should be cut short as quickly as possible, in order to provide green light to the vehicle requiring priority. Standard safety times and norms for the traffic lights will, however, always be respected.

In Kolding the project includes 2 ambulances, 1 fire engine, 1 fire brigade officer vehicle, 8 buses and 24 traffic light intersections.

The first stage of the project was finished in 1998. Here the Automatic Vehicle Location (AVL) System and communication between all units were tested successfully on 1 bus, 1 ambulance and 1 traffic light intersection.
The second stage of the project, involving full-scale implementation, is now ready to begin. Full implementation will be concluded in April, after which project evaluation will take place. The project will be running until December 31, 1999.

"Today, tags are already in use for, among other things, automatic identification of containers in connection with land and sea transport" says Iver Schriver.

In a city traffic management system, such as the one being implemented in Kolding, it is possible to utilise the tags installed in the infrastructure for additional public transport applications, such as arrival time and delay information at terminals and stops, next-stop information on displays or in speakers onboard buses, automatic bus-zone shift in ticketing machines, and information to the driver on performance relative to timetable.

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Engineer Sven Erik Thomsen
Kolding County Technical Administration
Nytov 11
DK 6000 Kolding
Denmark
Tel: +45 7550 1500 ext: 7430
Fax: +45 7552 0593
Email: seth@kolding.dk
Homepage: www.kolding.dk

International Marketing Coordinator Anders Hauch
Traffic Supervision Systems A/S
Lundtoftegade 97
DK 2800 Lyngby
Denmark
Tel: +45 7011 1170
Fax: +45 7011 1171
Email: anh@tss-tag.com
Homepage: www.tss-tag.com

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CFP: Pattern Recognition for Safer Driving
by Ishwar K. Sethi

ANNIE ’99
November 7-10, 1999
Marriott Pavilion Hotel, St. Louis, Missouri
Special Session on
Pattern Recognition for Safer Driving

The increase in performance and reduction in cost of intelligent sensing and computing is making it possible to develop complex yet cost-effective pattern recognition systems for safer driving. Many academic and industrial research groups are currently engaged in developing such systems. The aim of the special session on Pattern Recognition for Safer Driving is to bring together these researchers to assess the state of art in this area. We are therefore seeking papers on the applications of various pattern recognition methodologies to the following and related topics:

- Crash Avoidance and Obstacle Detection
- Driver Behavior Modeling and Monitoring
- Drowsy Driver Detection
- Intelligent Airbags
- Intelligent Cruise Control
- Intelligent Navigational Aids
- Lane Detection and Tracking
• Seat Occupant Classification

Please submit a letter of intent and an abstract (up to 200 words) by February 26, 1999. Full papers are due by May 14, 1999. Camera-ready manuscripts of the accepted papers will be due by August 6, 1999. Please forward your submissions and inquiries to:

Dr. Ishwar K. Sethi  
Organizer, Special Session  
ANNIE '99  
Vision and Neural Networks Laboratory  
Department of Computer Science  
Wayne State University  
Detroit, MI 48202, USA  
Email: sethi@cs.wayne.edu

Drs. Susanta Sarkar / Grace Bochenek  
Co-Organizers, Special Session ANNIE '99  
TARDEC  
ATTN: AMSTA-TR-R  
Building 200C, MS 264  
Warren, MI 48397-5000  
Email: {sarkars, bocheneg}@tacom.army.mil

The papers from the special session will be considered for a special issue of one of the journals in the field.

For information about ANNIE '99, please visit its web site at www.umr.edu/~annie.

CFP: Image Processing and Computer Vision for ITS

by Luigi Di Stefano

Call for Participation

3rd IMACS/IEEE International Multiconference on Circuits, Systems, Communications and Computers (IMACS-IEEE CSCC'99)  

Special Session on  
IMAGE PROCESSING AND COMPUTER VISION FOR INTELLIGENT TRANSPORTATION SYSTEMS  
Organiser: Luigi Di Stefano, DEIS, University of Bologna ldestefano@deis.unibo.it

Announcement

IMACS-IEEE CSCC'99, to be held in Athens (Greece) on July 4 - 8 1999, will include a Special Session on "IMAGE PROCESSING AND COMPUTER VISION FOR INTELLIGENT TRANSPORTATION SYSTEMS" as a part of the 3rd International Conference on Computers.

Aim and Scope

The goal of ITS (Intelligent Transportation Systems) is to deploy advanced technologies to improve the efficiency and safety of transport systems as well as to benefit the environment. Image processing and
computer vision play today an ever-increasing role among such advanced technologies. This special session is aimed at bringing together people interested in image-based technologies for ITS and providing discussions in particular on (but not limited to) the following topics:

- Vehicle Detection and Tracking
- Vehicle Classification
- Traffic Data Measurement
- Queue and Congestion Detection
- Incident Detection
- Road Code Violation and Automated Enforcement
- In-Vehicle Safety Devices
- Lane Keeping and Vehicle Guidance
- Collision Avoidance
- Sensors and Architectures

**Book Announcements**

_by Alessandra Fascioli_


This book surveys the history of intelligent vehicles, discusses some of the different approaches developed worldwide by a large number of research institutions, and presents the solutions adopted by the University of Parma in the ARGO Project, which started about 10 years ago within the Eureka PROMETHEUS Project. In particular, the book illustrates the problem, proposes some of the different solutions, and details the design, the development and the engineering of a hardware and software platform for automatic vehicle guidance, as well as the set-up of two prototype vehicles.

Among the main results of this research the GOLD (Generic Obstacle and Lane Detection) system is presented; it is an automatic driving system which has been integrated on ARGO, a Lancia Thema 2000 passengers’ car, allowing the vehicle to drive autonomously in real traffic conditions along highways and freeways, with no requirements of additional specific road infrastructures.

The results of this long term research was demonstrated to the international scientific community and to the public in the first week of June 1998 with a journey through Italy, the MilleMiglia in Automático tour, during which the vehicle drove autonomously for about 2000 km. The experience of this demonstration is discussed in the book, along with a description of the main advantages and problems encountered.

This book is divided in three parts. The first part presents the motivation of this research and a brief history of the main projects launched worldwide aimed at vision-based vehicle driving. The second and third
parts are related to the ARGO Project (University of Parma, Italy). Part II describes both the algorithms and the hardware platforms developed during the whole Project, starting from the very first implementation, up to the current, and presents the equipment installed on the ARGO prototype vehicle. Part III reports on the extensive test that was performed on ARGO, a 2000 km trip in automatic mode, and analyses the problems encountered and the overall system performance.

Readership: Researchers, designers and students in robotics, automotive systems, and intelligent transportation.


PhD Position
by Bart De Moor

Postdoctoral Position available

at K.U.Leuven, Dept. of Electrical Eng. (ESAT), SISTA/COSIC

There is an opening for a post-doctoral researcher (duration approx. 1.5 years) in the European TMR project ALAPEDES (THE ALGEBRAIC APPROACH TO PERFORMANCE EVALUATION OF DISCRETE EVENT SYSTEMS) in our research group SISTA/COSIC.

See http://www.cs.rug.nl/~rein/alapedes/ for more information about the project or http://www.esat.kuleuven.ac.be/sista for more information about the research group.

As an extension to the original proposal, the subject of research can be 'Traffic modelling'. SISTA/COSIC is also involved in another project on traffic research: 'Traffic Congestion Problems in Belgium: Mathematical Models, Analysis, Simulation and Control' (SSTC MD01/24).

SISTA/COSIC is currently doing research on identification of traffic flow patterns and on control of traffic flows on highways. A fundamental requirement for traffic research is knowledge of the information on turning movements and total number of vehicles through an intersection. The problem is then, based upon traffic flow measurements, to identify the entries of the origin-destination (O-D) matrix, i.e., the probabilities of vehicles entering one leg of an intersection and exiting another in an intersection. This O-D matrix is time dependent and so we are working on fast estimation algorithms to make on line estimation feasible. A second important research topic in the traffic field is the model based development of control schemes for Advanced Traffic Management Systems on highways, such as: ramp metering, variable message signs, dynamic route information panels ...

Please note that in order to apply, you need to come from an EEC (or associated) country (excluding Belgium) and younger than 35 years.

For more information, you can contact

Bart De Moor, Bart Motmans
K.U.Leuven, Dept. of Electrical Engineering (ESAT)
Research group SISTA/COSIC
Kard. Mercierlaan 94, B-3001 Leuven, Belgium
Tel. +32-16-32 17 09 (secr.), Fax. +32-16-32 19 70
Email: Bart.DeMoor@esat.kuleuven.ac.be, Bart.Motmans@esat.kuleuven.ac.be