



**INTELLIGENT  
TRANSPORTATION  
SYSTEMS**

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**IEEE ITS SOCIETY NEWSLETTER**

Vol. 10, No. 1, January 2008

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**In This Issue**

Society News

|                                                                       |   |
|-----------------------------------------------------------------------|---|
| Message from the Editor.....                                          | 3 |
| Message from the President.....                                       | 3 |
| Message from the<br>Vice President for Administrative Activities..... | 4 |
| ITS Society Members Elected to IEEE Fellow.....                       | 4 |
| ITS Society Board of Governors Election Results .....                 | 5 |

Conferences

|                                                                                                          |    |
|----------------------------------------------------------------------------------------------------------|----|
| IEEE ITS Society Sponsored Conferences.....                                                              | 5  |
| 2008 IEEE Intelligent Vehicles Symposium .....                                                           | 6  |
| Call for Papers 4th IEEE Workshop on<br>Vehicle-to-Vehicle Communications (V2VCOM 2008) .....            | 7  |
| 2008 IEEE International Conference on<br>Intelligence and Security Informatics .....                     | 8  |
| 2008 IEEE International Conference on<br>Vehicular Electronics and Safety.....                           | 9  |
| The 11th International IEEE Conference on<br>Intelligent Transportation Systems .....                    | 10 |
| 2008 IEEE/INFORMS International Conference on<br>Service Operations and Logistics, and Informatics ..... | 11 |
| 2008 IEEE/ASME International Conference on<br>Mechatronic and Embedded Systems and Applications .....    | 12 |
| Conference Calendar .....                                                                                | 13 |

Announcements

|                                                                                                                               |    |
|-------------------------------------------------------------------------------------------------------------------------------|----|
| Call for Papers, IEEE ITS Transactions,<br>Special Issue on the DARPA Urban Challenge<br>Autonomous Vehicle Competition ..... | 15 |
| Call for Papers and Volunteers, ITS Magazine .....                                                                            | 16 |
| Call for Proposals, Best PhD Dissertation Award<br>and Best Practice Award for Engineering.....                               | 17 |
| ITS Workshops .....                                                                                                           | 18 |

|                                         |    |
|-----------------------------------------|----|
| IEEE Transactions on ITS Abstracts..... | 19 |
|-----------------------------------------|----|

|                                                      |    |
|------------------------------------------------------|----|
| IEEE ITS Society Officers and Committee Chairs ..... | 22 |
|------------------------------------------------------|----|

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**Web Archive and Electronic Newsletter  
Subscription**

The IEEE ITS Society Newsletter is published quarterly in January, April, July, and October. The current and all past issues of the Newsletter may be downloaded at no charge from the Society's web site:

[www.ieee.org/itss](http://www.ieee.org/itss)

You may subscribe to or unsubscribe from announcements at the same web site. Announcements are sent to approximately 10,000 ITS professionals from industry, academia, and government.

**Information for Contributors**

Announcements, feature articles, book and meetings reviews, opinions, letters to the editor, professional activities, abstracts of reports, and other material of interest to the ITS community are solicited. Please submit electronic material for consideration in any of the following formats: Microsoft Word, OpenOffice, plain ASCII, rich text format (rtf), or portable document format (pdf) to the Editor-in-Chief at [c.herget@ieee.org](mailto:c.herget@ieee.org).

**Editorial Board**

**Editor-in-Chief:**

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\*\*\*\*\*

**IEEE ITSS MEMBERSHIP:  
OPENING THE WORLD OF ITS TECHNOLOGY**

Renew Your Membership for 2008

Join the IEEE Intelligent Transportation Systems Society

ITSS membership includes the Transactions on ITS

To Renew: [www.ieee.org/renew](http://www.ieee.org/renew)

You must be a member of IEEE to join the ITS Society.

To Join IEEE: [www.ieee.org/join](http://www.ieee.org/join)

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## Society News

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### From the Editor

This issue of the Newsletter will be brief because it follows immediately behind the December 2007 issue. The reason for the change in schedule is to synchronize the Newsletter with the other publications of the Society. The Newsletter will now appear in January, April, July, and October. The Society's Transactions appears in March, June, September, and December. The Society will begin publishing a new Magazine this year. The Magazine is scheduled to appear in February, May, August, and November. See the Call for Papers and Volunteers in this issue of the Newsletter.



by Charles J. Herget

As stated in the information for contributors, we welcome contributions from our readers. If you have something you want to contribute that you think is of interest to the ITS community, please send it to me. We are interested in obtaining feature articles, technical articles of general interest, and reports on research programs. If you are an author of a book on ITS and would like to submit it for a book review, please let us know. A new feature that I would like to institute is a section containing Letters to the Editor. If there is anything on which you would like to comment that you think is of interest to the ITS community, send me an email at [c.herget@ieee.org](mailto:c.herget@ieee.org).

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### From the President

As this is my first report, and written before I officially take office, so there is not too much to report! In its brief lifetime, the ITSS has made major steps and accomplishments, and much of this is a result of the efforts of a small and highly dedicated group, many of whom have been with the organization since its days as a council. We owe a debt of gratitude to Past-President Fei-Yue Wang for his numerous accomplishments and extensive work on behalf of the Society. The results of these efforts were detailed in the previous newsletter, but the bottom line is that we have established a solid foundation of Society activities, anchored by the outstanding *ITS Journal* and a series of established quality conferences.



by Bill Scherer

So where do we go from here? The key objectives that I see, and we will discuss at the Board of Governors meeting in June in the Netherlands, are as follows:

- **Launch of the *ITS Magazine*.** Launching a magazine is never easy, and we are working through numerous decisions. The most critical aspects of the magazine will be the content, which will need to come from the members, and the advertising, which is essential for economic viability.
- **Growth of the *ITSC*, our annual flagship conference.** We need to grow attendance to over 500 per year and firmly establish the ITSC as the premier ITS conference. This will require important structural decisions and creative thinking to design the conference for the next decade.
- **Solidification of our four newer conferences.** We have added four new conferences to the Society. ITSC is solid, but needs growth (see above), while IV appears to be very stable and viable. The other newer conferences are all important and vital, but they need attention in order to guarantee their long term viability. The Board of Conference Editors mentioned by Fei-Yue should assist in the technical content area of these conferences; however, it is essential that we establish strong leaders for these conferences for the long-term.
- **Growth of the Society.** In order to remain a vital IEEE organization, we need to grow membership in terms of total numbers and in all geographic regions, including areas we have little or no presence (i.e., South America).
- **Long Term Planning.** This has been on the books for a long time, but has not been active in recent years. We need to establish long-term Society Goals, and associated financial plans.

In his last Message from the President Fei-Yue mentioned numerous other important activities, including the integration of our publications, including our Web presence, technical activities, awards, and others. Critical to all of these activities is volunteer support from our members. We need more participation across the board in order to accomplish the above objectives. Thus a first order of business at the BOG meeting will be to develop approaches to get more members participating on the numerous and varied ITSS activities.

We are at an exciting time in ITS, and a look at the news shows the problems of transportation continue to grow rapidly – despite the advances and achievements of the ITS communities. I believe that our Society can and will play an important role in the future of ITS, and I look forward to working with the Officers, BOG, and membership over the next several years.

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## From the VP for Member Activities

### Some Notes on Society Governance

Each year the Intelligent Transportation Systems Society elects five of the fifteen Board of Governors (BOG) Members for a three year term. Immediate Past President, Professor Fei-Yue Wang, who is Chair of the Nominations Committee, appoints Nominations Committee members described by the Bylaws to:

“consist of a Chair and three more members of the Society. At least two of the four shall not be members of the BOG. The current Society Officers may not serve on the Nominations Committee, or be ex officio members. No member of the Nominations Committee shall be a candidate for any office.”

The Bylaws also require that the call for nominations be publicized to the membership and that nominations be submitted to the committee by May 1 of that year. Nominations may be submitted to the committee by Email to [feiyue@sie.arizona.edu](mailto:feiyue@sie.arizona.edu) by May 1st. The committee identifies qualified individuals from the nominees and places them on the ballot for the BOG.

An alternative way to be placed on the BOG Ballot is through petition. The Bylaws state:

“A nomination by petition from the Society membership must contain valid signatures of at least twenty-five (25) Society members, excluding Students and Affiliates, and must be received by the President of the Society on or before May 15. The reception of any such valid petition shall automatically place that nominee on the slate, provided he/she is an IEEE and Society Member in good standing and meets all other requirements of the Constitution and these Bylaws.”

So if you have an interest in participating in the Governance of the ITS Society it is timely to submit a nomination to [feiyue@sie.arizona.edu](mailto:feiyue@sie.arizona.edu) or a petition to [w.scherer@ieee.org](mailto:w.scherer@ieee.org).



by Dan Dailey

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## ITS Society Members Elected to IEEE Fellow

The IEEE Board of Directors has named 295 IEEE Senior Members to Fellow Grade effective 1 January 2008. The following are members of the ITS Society.

Roland Siegwart  
ETH Zurich (Swiss Federal Institute of Technology, Zurich)  
Zurich, Switzerland  
for contributions to mobile, networked, and micro-scale robots

Alexander Zelinsky  
Commonwealth Scientific Industrial Research Organisation (CSIRO)  
Epping, NSW, Australia  
for contributions to vision-based robotics

Jinyun Zhang  
Mitsubishi Electric Research Labs  
Cambridge, MA, USA  
for contributions to broadband wireless transmission and networking technology

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## ITS Society Board of Governors Election Results

The IEEE has announced the following candidates for the Board of Governors were elected to office for a three-year term effective January 1, 2008:

Azim Eskandarian, The George Washington University, USA  
Byungkyu (Brian) Park, University of Virginia, USA  
Bart De Schutter, Delft University of Technology, The Netherlands  
Sharron (Shuming) Tang, Shandong University of Science and Technology, China  
Sadayuki Tsugawa, Meijo University, Japan

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## Conferences

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The IEEE ITS Society will sponsor the following conferences in 2008:

June 4-6, 2008

**2008 IEEE Intelligent Vehicles Symposium**

Eindhoven, the Netherlands,

[www.iv2008.nl](http://www.iv2008.nl)

June 17-20, 2008

**2008 IEEE International Conference on Intelligence and Security Informatics**

Taipei, Taiwan

[isi2008.cpu.edu.tw](http://isi2008.cpu.edu.tw)

September 22-24, 2008

**2008 IEEE International Conference on Vehicular Electronics and Safety**

Columbus, Ohio, USA

[www.ece.osu.edu/ICVES08](http://www.ece.osu.edu/ICVES08)

October 12-15, 2008

**The 11<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems**

Beijing, China

[www.ieceitsc.org](http://www.ieceitsc.org)

October 12-15, 2008,

**2008 IEEE/INFORMS International Conference on Service Operations and Logistics, and Informatics**

Beijing, China

[www.ieceesoli.org](http://www.ieceesoli.org)

October 12-15, 2008

**2008 IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications**

Beijing, China

[www.asmemesa.org](http://www.asmemesa.org)



## 2008 IEEE Intelligent Vehicles Symposium June 4-6, 2008 Eindhoven, the Netherlands

IV '08 paper submission closes  
with an IV record of over 290 submissions!

The paper submission of IV'08 has now been closed. Over 290 submissions were received, which sets a new record for the IV conference! The submissions have been sent out for review. The authors will be notified about the results of the review by February 28.

The 2008 IEEE Intelligent Vehicles Symposium (IV'08), which is an annual forum sponsored by the IEEE Intelligent Transport Systems Society, will take place in Eindhoven, the Netherlands during June 4-6, 2008. Eindhoven provides a splendid conference location. The conference site at the Eindhoven University of Technology, hotels and demonstration sites are all in walking distance, right in the City centre, next to the railway station and the Phileas semi-automated bus system to the airport. Welcome to Eindhoven!

The Intelligent Vehicles Conference gathers researchers from industry, universities and public authorities to discuss research and applications for intelligent vehicles, including the communication between vehicles and between vehicles and infrastructure.

The technical sessions of the symposium consist of plenary presentations, including keynote presentations by TomTom, Daimler and PATH/UC Berkeley, and interactive poster sessions. Full paper submission is required before *December 15, 2007*. Selected papers will be included in a special issue of the IEEE Transactions on Intelligent Transportation Systems. An award will be presented for the Best Student Paper.

On June 6, the road next to conference venue will be closed for normal traffic in order to provide a perfect site for demonstrations of intelligent vehicles. Live demonstrations are expected to be provided by various research groups from Europe. Proposals for demonstrations can be submitted until March 15, 2008. Information about the demonstration conditions and booking information can be found on our website.

On June 3, meetings and workshops in conjunction to the conference will be held. Meetings and workshops can be proposed until February 1, 2008.

All activities, sessions as well as the demonstrations are at the campus of the Eindhoven University of Technology. Eindhoven (and its region) is known as key area of the Dutch High Tech Industry, including the Dutch automotive industry that consists of over 200 companies. A range of Dutch automotive companies belong to the world top ranking companies.

For more information visit our website:  
[www.iv2008.nl](http://www.iv2008.nl).

Henk Nijmeijer & Bart van Arem  
General chairs IV 2008

#### Organizing parties



#### Main sponsors



**Call for Papers**  
**4th IEEE Workshop on Vehicle-to-Vehicle Communications (V2VCOM 2008)**

<http://www.toyota-itc.com/en/v2vcom/2008/>

Co-located with 2008 IEEE Intelligent Vehicles Symposium  
Tuesday, June 3, 2008  
Eindhoven, the Netherlands

This one-day workshop seeks to bring together researchers, professionals, and practitioners to present and discuss recent developments and challenges in vehicle-to-vehicle and vehicle-to-infrastructure networking technologies, and their applications. Specifically, we solicit original research contributions addressing the following areas:

- Vehicular ad hoc networks
- Vehicle-to-vehicle (V2V) communications
- Vehicle-to-infrastructure (V2I) communications
- Potential applications of V2V and V2I communications including ITS
- Protocols for V2V and V2I communications (MAC, routing, mobility management, etc.)
- Security and authentication issues in V2V and V2I networks
- Physical layer and RF level technologies for V2V and V2I communications
- Antenna technologies for V2V and V2I communications
- Radio resource management and QoS support for V2V and V2I communications
- Information networking over V2V, V2R and next-generation networks
- Simulation / performance evaluation techniques for V2V and V2I communications
- Algorithms, protocols and systems for data dissemination in V2V and V2I communications
- Experimental systems and testbeds for V2V and V2I communications
- Standardization updates on V2V and V2I communications

**Submission Instructions**

Authors are invited to submit full papers of up to 20 double-spaced pages, including references, figures and tables. All submissions should be submitted electronically in Postscript or Adobe PDF format to both of the workshop chairs:

Onur Altintas (onur@jp.toyota-itc.com)  
Wai Chen (wchen@research.telcordia.com)

**Important Dates:**

Paper Submission Deadline: March 31, 2008  
Notification of Acceptance: April 27, 2008  
Camera-Ready Submissions: May 11, 2008

# CALL FOR PAPERS

## IEEE International Conference on Intelligence and Security Informatics (IEEE ISI-2008)

Conference Web site: <http://isi2008.cpu.edu.tw/>

June 17 ~ 20, 2008, Taipei, Taiwan

### Important Dates

- |                                                |                                                   |
|------------------------------------------------|---------------------------------------------------|
| ◆ Submissions due: <b>January 31, 2008</b>     | Notification of acceptance: <b>March 14, 2008</b> |
| ◆ Camera-ready copy due: <b>March 28, 2008</b> | Conference dates: <b>June 17-20, 2008</b>         |

### Hosts

- Central Police University, Taiwan
- National Taiwan University, Taiwan
- National Taiwan University of Science and Technology, Taiwan
- Institute of Information Science, Academia Sinica, Taiwan

### Major Sponsors

- Institute of Electrical and Electronics Engineers, Intelligent Transportation Systems Society (IEEE ITSS)
- Science and Technology Advisory Group of Executives Yuan, Taiwan
- Ministry of the Interior, Taiwan
- National Security Agency, Taiwan
- National Science Foundation, U.S. (see the website for complete sponsor list)

Intelligence and Security Informatics (ISI) is concerned with the study of the development and use of advanced information technologies and systems, computer science, and algorithms for national, international, and societal security-related applications, through an integrated technological, organizational, and policy based approach. The annual IEEE International Conference series (<http://www.isiconference.org>) on ISI was started in 2003 and the first five meetings were held in Tucson (twice), Atlanta, San Diego, and New Brunswick in the United States. In addition, two Pacific Asia Workshops on ISI were held in Singapore and Chengdu, China, in 2006 and 2007 respectively. These ISI conferences and workshops have brought together academic researchers, law enforcement and intelligence experts, information technology consultants and practitioners to discuss their research and practice related to various ISI topics. Besides the established and emerging ISI research topics of ISI conferences and workshops, we also extend ISI to cover related rapid growing areas, such as computer forensics and cyber investigation. The conference will provide a stimulating forum for ISI researchers all over the world to exchange ideas and report research progress.

### Paper Submission/Areas of Interest

Submissions in related research areas may include system, methodology, evaluation, testbed, intelligence policy, and position papers. Research should be relevant to both informatics and national/international and homeland security, and be relevant to the academic and public policy communities. Topics include but are not limited to:

| I. Information Sharing and Data Mining                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | II. Infrastructure Protection and Emergency Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | III. Terrorism Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ◀ Intelligence-related knowledge discovery ▶ Computer or cyber crime investigations and digital forensics ▶ Criminal investigative criteria and standard of procedure on Computer crime ▶ Criminal data mining and network analysis ▶ Criminal/ intelligence information sharing and visualization ▶ Web-based intelligence monitoring and analysis ▶ Spatial-temporal data analysis/GIS for crime analysis and security informatics ▶ Deception and intent detection ▶ Cyber-crime detection and analysis ▶ Authorship analysis and identification ▶ Applications of digital library technologies in intelligence data processing, preservation, sharing, and analysis ▶ Agents and collaborative systems for intelligence sharing ▶ HCI and user interfaces of relevance to intelligence and security ▶ Information sharing policy and governance ▶ Privacy, security, and civil liberties issues ▶ Intelligence-computerized community security and surveillance system | ▶ Cyberinfrastructure design and protection ▶ Intrusion detection ▶ Bio-terrorism tracking, alerting, and analysis ▶ Bio-terrorism information infrastructure ▶ Transportation and communication infrastructure protection ▶ Border/transportation safety ▶ Emergency response and management ▶ Disaster prevention, detection, and management ▶ Communication and decision support for search and rescue ▶ Assisting citizens' responses to terrorism and catastrophic events ▶ Computer forensics and crime lead discovery ▶ Anti-fraud information technology | ▶ Terrorism related analytical methodologies and software tools ▶ Terrorism knowledge portals and databases ▶ Terrorist incident chronology databases ▶ Terrorism root cause analysis ▶ Social network analysis (radicalization, recruitment, conducting operations), visualization, and simulation ▶ Forecasting terrorism ▶ Countering terrorism ▶ Measuring the impact of terrorism on society ▶ Measuring the effectiveness of counter-terrorism campaigns ▶ Crime intelligence and cyberspace crime investigation ▶ Immigration and security |

**Paper submission:** Long (6,000 words, 6 pages max.) and short (3,000 words, 3 pages max.) papers in English, using the IEEE two-column format, must be submitted online in Microsoft Word or PDF format by Thursday, January 31, 2008. Authors wishing to present a poster and/or demo may submit a 2-page abstract, which, if selected, will appear in the Proceedings. Required templates (IEEE two-column format) can be found on the conference Web site. The final version must be prepared strictly following the IEEE Conference Proceedings requirements. Please see the website for additional information and requirements.

**Workshops:** Three Workshops will be offered as part of ISI 2008: 1) Pacific Asia Workshop on Intelligence and Security Informatics (PAISI2008); 2) Pacific Asia Workshop on Cybercrime and Computer Forensics (PACCF2008); and 3) Workshop on Social Computing (SOCO2008). Workshop submissions must follow the requirements posted for the relevant Workshop. Please refer to the Workshop pages in the conference website for information about submissions to workshops.

**Meet the Author Sessions:** Authors of accepted papers are strongly encouraged to also discuss their findings in a "meet the author" poster/demo session.

### Conference Organizing Committees

#### Conference Co-chairs

- **President Ing-Dan Shieh**, Central Police Univ., Taiwan
- **President Si-Chen Lee**, National Taiwan Univ., Taiwan
- **President Shi-Shuenn Chen**, National Taiwan Univ. of Sci. and Tech.
- **Director D.T. Lee**, Inst. of Information Science, Academia Sinica, Taiwan
- **Professor Hsinchun Chen**, Univ. of Arizona, USA

#### Conference Organizing Committee Co-chairs

- **Vice President I-An Low**, Central Police Univ., Taiwan
- **Dean Frank F.Y. Huang**, Central Police Univ., Taiwan
- **Professor Yuan-Cheng Lai**, National Taiwan Univ. of Science and Technology
- **Professor Jau-Hwang Wang**, Central Police Univ., Taiwan

### Program Committee Co-Chairs

- **Professor Wun-Hwa Chen**, National Taiwan Univ., Taiwan
- **Dr. Wen-Lian Hsu**, Academia Sinica, Taiwan
- **Professor Christopher C. Yang**, Chinese Univ. of Hong Kong
- **Professor Tzong-Chen Wu**, National Taiwan Univ. of Sci. and Tech.
- **Professor Daniel Zeng**, Univ. of Arizona, USA

### Keynote and Invited Speakers

- **Dr. Henry C. Lee**, "Cyber Crime and Challenges for Crime Investigation" *Keynote*
- **Dr. Jarrett Brachman**, "Countering Terrorism"
- **Dr. Joydeep Ghosh**, "Probabilistic Frameworks for Privacy-Aware Data Mining"
- **Dr. Hsinchun Chen**, "Activism, Extremism & Terrorism on the Web"
- **Dr. Bhavani Thuraisingham**, "Data Mining for Security Applications"
- **Dr. Joydeep Srivastava**, "Data Mining for Social Network Analysis"
- **Dr. Fei-Yue Wang**, "Social Computing: Fundamentals & Applications"



# Preliminary Call for Papers



## 2008 IEEE International Conference on Vehicular Electronics and Safety

Sponsored by the IEEE Intelligent Transportation Systems Society  
September 22-24, 2008 -- Columbus Ohio, USA

The International Conference on Vehicular Electronics and Safety (ICVES) is an annual meeting sponsored by the IEEE Intelligent Transportation Systems (ITS) Society. It is a forum for researchers from industry and universities to discuss research and applications in vehicle electronics, and vehicle safety systems. Papers dealing with all aspects of vehicle electronics and vehicle safety-related intelligent systems are solicited for this third meeting: ICVES

### TOPICS:

|                                   |                                     |
|-----------------------------------|-------------------------------------|
| Active and Passive Safety Systems | Navigation and Localization Systems |
| Telematics                        | Vehicular Measurement Technology    |
| Vehicular Power Networks          | Vehicular Signal Processing         |
| X-By Wire Technology              | Micro-electromechanical Systems     |
| System-On-a-Chip                  | Image Sensors                       |
| Vehicular Sensors                 | Vehicle/Engine Control              |
| Vehicle Bus                       | Driver Assistance Driving Systems   |
| Sensor Network                    | Adaptive Cruise Control Systems     |
| Embedded Operation System         | Pattern Recognition for Vehicles    |
| Electro Magnetic Compatibility    | Human Machine Interaction           |
| Inter-Vehicular Network           | Online Diagnostics                  |
| Vehicle Testing                   | Virtual/Digital Systems             |
| Vehicle Hardware/Software Systems | Others                              |

### IMPORTANT DATES:

Paper submission deadline-----April 15, 2008  
Notification of acceptance-----July 1, 2008  
Camera-ready copy due----- August 1, 2008

**FURTHER INFORMATION:** <http://www.ece.osu.edu/ICVES08>

# Call for Papers



## The 11<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems, Beijing, China, October 12-15, 2008

Organized by Institute of Automation, Chinese Academy of Sciences

Sponsored by the IEEE Intelligent Transportation Systems Society

The IEEE Intelligent Transportation Systems Society (ITSS) is sponsoring a conference on basic research and applications of leading advances in communications, computer, control, and electronics technologies related to Intelligent Transportation Systems (ITS). IEEE ITSC 2008 is technical-sponsored by Key Lab for Complex Systems & Intelligence Science (CSIS) in the Chinese Academy of Sciences (CAS).

### Topics

#### Travel and Traffic Management

Travel Information and Guidance  
Ride Matching And Reservation  
Traveler Services Information  
Traffic Control  
Incident Management  
Travel Demand Management  
Emissions Testing And Mitigation  
Highway-rail Intersection  
Complex Adaptive Systems for Transportation

#### Public Transportation Management

Public Transportation Management  
En-route Transit Information  
Personalized Public Transit  
Public Travel Security

#### Commercial Vehicle Operations

Commercial Vehicle Electronic Clearance  
Automated Roadside Safety Inspection  
On-board Safety Monitoring  
Commercial Vehicle Administrative Processes  
Hazardous Material Incident Response  
Commercial Fleet Management

#### Advanced Vehicle Safety Systems

Collision Avoidance  
Vision Enhancement  
Advanced Safety Systems  
Automated Vehicle Operation

#### Electronic Payment

Electronic Payment Services

#### ITS Modeling and Analysis

Data Mining and Analysis  
Travel Behavior Under ITS  
Simulation and Modeling  
Traffic Theory for ITS  
Statistical Modeling  
Optimization and Control: Theory and Modeling  
Geographic Information Systems  
Hardware in the Loop Simulation  
Software in the Loop Simulation  
Artificial Transportation Systems

#### Emergency Management and Transportation Security

Emergency Notification & Personal Security  
Emergency Vehicle Management  
ITS and National Security  
Parallel Management Systems for Transportation  
Emergency

#### Other Topics

Imaging and Image Analysis  
Multi-Sensor Fusion  
Cooperative Psychologies  
Intelligent Transportation Space  
Agent-based Methods for Traffic and Vehicular Systems  
Ad Hoc Networks

### Paper Submission

Complete manuscripts in PDF format must be electronically submitted for peer-review in IEEE standard-format. Detailed submission instructions can be found on the paper submission website: <http://www.ieeeitsc.org>

**Submission Deadline:**

**June 1, 2008**

**Notification of acceptance date:**

**July 15, 2008**

**Final paper submission date:**

**August 15, 2008**



## CALL FOR PAPERS

### 2008 IEEE/INFORMS International Conference on Service Operations and Logistics, and Informatics (IEEE/SOLI'2008)

October 12-15, 2008, Beijing, China

<http://www.ieeesoli.org>

Sponsored by IEEE/ITSS, Technical-sponsored by INFORMS and Hosted by Beijing Jiaotong University

#### General Chairs

Yanping Liu  
Beijing Jiaotong University  
ypliu@bjtu.edu.cn  
Runtong Zhang  
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rtzhang@bjtu.edu.cn  
Robin G. Qiu  
Pennsylvania State University  
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#### Executive Chairs

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#### Steering Committee Chairs

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#### Special Session Chairs

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Vol. 10, No. 1

#### Conference Scope and Themes



areas.

#### Conference Proceedings

All papers in the Proceedings of IEEE/SOLI are indexed by ISTP and included in the IEEE Xplore.

#### Areas of Interest

Papers relating to Services/Logistics Design, Innovations, Marketing, Operations, and Engineering; Information Technology / Systems, and their specific applications are strongly encouraged. Special sessions on specific service topics are also welcome. Topics include, but are not limited to:

- ◆ **Service Design, Engineering, Operations, and Innovations** - Service planning and design • Service process engineering • Expedited services and extreme logistics • Healthcare systems • Financial services • Retail and services management • Quality and customer satisfaction • Metrics and benchmarks • Security & safety-related services and management • Contingency planning • Operations research • Production engineering • Intelligent traffic • Engineering consulting • Traffic planning • Integrated transportation • Service operation
- ◆ **Logistics & Supply Chain Management** - • On-demand delivery • Logistics planning • Freight forwarding and customs clearance • Venue logistics management • Warehouse and distribution • Transportation management systems • Reverse logistics • Logistics visibility and control • Procurement • supply chain collaboration • supply chain process • supply chain networks
- ◆ **Material Flow (MF) Science and Technology** - • MF fundamental sciences (MF mathematics, physics, chemistry, biology, etc.) • Comprehensive MF theory • MF in the natural world • Material flow in the social world • Material flow in the economic world • MF element theory • MF nature • MF engineering • MF Industry • MF Technological economics • Cycle MF System • X party material flow (XPMF) • The MF complexity and emergence • The MF information and simulation technology • MF systems and networks • Financial Measures of MF
- ◆ **Service/Event Management & Manufacturing** - Demand forecasting • Customer relationship management • Event communication and alerting • Services training • Services sustaining • Services quality • Services bundling • E-market for services • Event management system • Event sponsorship • Event-based production and supply chain • Event-based products and manufacturing • Intelligent manufacturing • Customization
- ◆ **Information & Communications Technology and Systems (ICTS)** - ICTS services design and management • ICTS services standards, locating, composition, and bundling • Process modeling, augmentation, and automation • Real time identification & tracking • Pervasive and ubiquitous computing in logistics • Decision support systems • Software agent based systems • RFID • data warehousing and data/Web mining • Business intelligence • Systems interoperability and integration • Information security • IT Project Management • Information Management in construction project
- ◆ **Electronic Commerce & Knowledge** - Wireless Communication and mobile commerce • Mobile services • Electronic government • Information resource management • IT and enterprise innovation management • IT and strategy for the sustainable development of enterprises • Semiotics • Business performance management • Customer relationship management • Information economics • Network culture and harmonious society • Distributed computing • Sensor networks

#### Paper Submission

Manuscripts in English must be electronically submitted at the conference website: <http://www.ieeesoli.org> They should be at most six pages in the IEEE two-column conference paper format. A LaTeX style file and a Microsoft Word template are available from the IEEE web site (<http://www.ieee.org/pubs/transactions/stylesheets.xml>). The submissions, however, need to be in PDF.

#### Important date

|                 |                                        |
|-----------------|----------------------------------------|
| June 1, 2008    | Deadline for submission of full papers |
| July 15, 2008   | Acceptance/Rejection notification      |
| August 15, 2008 | Final camera-ready papers due          |
|                 | January 2008                           |



# CALL FOR PAPERS



**MESA08 --- 2008 IEEE/ASME International Conference  
on Mechatronic and Embedded Systems and Applications**  
Beijing, China, October 12-15, 2008  
<http://www.asmemesa.org>

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<http://www.asmemesa.org>

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## Objectives

Mechanical and electrical systems show an increasing integration of mechanics with electronics and information processing. This integration is between the components (hardware) and the information-driven functions (software), resulting in integrated systems called mechatronic systems. The development of mechatronic systems involves finding an optimal balance between the basic mechanical structure, sensor and actuators, automatic digital information processing and control in which embedded systems play a key role. The field of embedded system and mechatronics is becoming evermore challenging; issues in embedded software lie at the focus of researchers both in industry and academia. The goal of this 4th IEEE/ASME MESA, MESA08, is to bring together experts from the fields of mechatronic and embedded systems, disseminate the recent advances made in the area, discuss future research directions, and exchange application experience. The conference program is organized in a number of symposia.

## Venue

MESA08 will be held together along with the 11th Intl IEEE Conf on Intelligent Transportation Systems and 2008 IEEE Intl Conf on Service Operations and Logistics, and Informatics.

## Paper Submission

Complete manuscripts in PDF format must be electronically submitted to the conference website <http://www.asmemesa.org>. Submitted manuscripts should be six (6) pages or less in IEEE two-column format, including figures, tables, and references.

## Important Dates

June 1, 2008

Full paper, proposal for special session, workshop and tutorial

July 15, 2008

Notification of acceptance

August 15, 2008

Camera ready paper submission

## Conference Calendar

This section lists upcoming ITS-related conferences, workshops, or exhibits. Contributions are welcome; please send announcements to [itsconfs@ce.unipr.it](mailto:itsconfs@ce.unipr.it).



*by Massimo Bertozzi*

### 2008

February 6-8

Intl.Conference on Automation and Robotics  
Cairo, Egypt

<http://www.waset.org/icar08>

March 5-6

Avionics Military and Civil Conference  
Amsterdam, The Netherlands

<http://www.avionics-event.com>

March 18-19

5th International Workshop on Intelligent Transportation  
Hamburg, Germany

Submissions due by: November 16, 2007

<http://wit.tu-harburg.de>

March 26-27

European Robotics Symposium  
Prague, Czech Republic

<http://www.action-m.com/euros2008>

April 1-4

Intertraffic 2008  
Amsterdam, The Netherlands

<http://www.amsterdam.intertraffic.com>

April 3-4

European Conference on Human Centred Design for ITS  
Lyon, France

<http://www.conference.noehumanist.org>

May 11-14

IEEE Vehicular Technology Conference Spring 2008  
Marina Bay, Singapore

<http://www.ieeevtc.org/vtc2008spring>

May 19-23

IEEE International Conference on Robotics and Automation (ICRA 2008)  
Pasadena, California (USA)

Submissions due by: September 14, 2007

<http://www.icra2008.org>

May 27-31

10th International Conference on Application of Advanced Technologies in Transportation  
Athens, Greece

<http://www.civil.ntua.gr/aatt/>

June 30-July 2  
1st Mediterranean Conference on Intelligent Systems and Automation  
Annaba, Algeria  
<http://lsc.univ-evry.fr/cisa08/doku.php>

August 6-8  
3rd International Symposium on Transport Simulation  
Queensland, Australia  
Submissions due by: October 15, 2007  
<http://civil.eng.monash.edu.au/conferences/ists08>

September 21-24  
IEEE Vehicular Technology Conference Fall 2008  
Calgary, Canada  
Submissions due by: February 2008  
<http://www.ieeevtc.org/vtc2008fall>

September 22-26  
International Conference on Intelligent Robots and Systems  
Nice, France  
Submissions due by: January 22  
<http://iros2008.inria.fr>

## 2009

July 16-18  
International Symposium on Transportation and Traffic Theory  
Hong Kong  
<http://www.isttt18.org>  
Submissions due by: December 15, 2007

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## Announcements

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Announcements for the activities listed below appear on the following pages.

### **IEEE Transactions on ITS Call for Papers**

The *IEEE Transactions on Intelligent Transportation Systems* has announced the intention to publish a Special Issue on the DARPA Urban Challenge Autonomous Vehicle Competition with Guest Editors: Christoph Stiller, Ümit Özgüner, and Alberto Broggi.

### **IEEE ITS Magazine Call for Papers and Volunteers**

The ITS Society will begin publishing a Magazine. The Magazine will be published quarterly with the first issue scheduled to appear in February 2008.

### **IEEE ITS Society Best PhD Dissertation and Best Practice Awards Call for Nominees**

Each year, the ITS Society presents awards for the Best PhD Dissertation and the Best Practice.

### **ITS Workshops**

AIDE Final Workshop and Exhibition: "Towards Future Automotive HMI," 15-16 April 2008, Gothenburg, Sweden

Workshop on Future Perspectives of Cooperative Systems for Road Safety, 21-22 January 2008, Stuttgart, Germany



# Call for Papers



## IEEE Transactions on Intelligent Transportation Systems

### Special Issue on the DARPA Urban Challenge Autonomous Vehicle Competition

Guest Editors: Christoph Stiller, Ümit Özgüner, and Alberto Broggi

**The Urban Challenge 2007**, a competition of autonomous vehicles, took place on November 3, 2007, in Victorville, CA, USA. As its predecessors, the Grand Challenges 2004 and 2005, this competition has significantly enhanced research, progress, and public awareness in the field of autonomous driving.

While the techniques applied in the competition have hardly been published up to date, we invite all participants to report on their **technologies and algorithmic approaches developed during all stages leading up to the Challenge**.

**Topics addressed may include, but are not limited to, the following:**

- **vehicle architecture and design**
- **sensing and sensor fusion**
- **localization and planning**
- **fault and error detection and recovery**
- **path planning and behavior decision**
- **special hardware and actors**
- **simulation and testing**
- **performance in the competition**
- **lessons learned**

#### **Submission Procedure:**

Authors should prepare manuscripts according to the Information for authors available at <http://www.ewh.ieee.org/tc/its/trans.html> and select ‘**Special Issue on DARPA Urban Challenge**’ as paper type when submitting their papers.

| <b>Schedule</b>                              |               |
|----------------------------------------------|---------------|
| Paper submission                             | Feb. 28, 2008 |
| Review completed, Notification of acceptance | May 15, 2008  |
| Final manuscript submission                  | July 30, 2008 |



**NEW**  
**INTELLIGENT  
TRANSPORTATION  
SYSTEMS SOCIETY  
MAGAZINE**



**The IEEE ITS Society will begin publishing a magazine starting in February 2008.**

### **Scope**

The IEEE ITS Magazine will publish peer-reviewed articles that

- provide innovative research ideas and application results,
- report significant application case studies, and
- raise awareness of pressing research and application challenges in all areas of intelligent transportation systems.

In contrast to the archival publications in the IEEE Transactions on ITS, the ITS Magazine will focus on providing information of general interest to all members of ITS society, serving as a dissemination vehicle for ITS Society members and others to learn the state of the art development and progress on ITS research and applications.

High quality tutorials, surveys, successful implementations, technology reviews, lessons learned, policy and societal impact, and ITS educational issues will be published.

### **CALL FOR PAPERS**

Suggested topics for authors include, but are not limited to, information technologies, infrastructure protection, public policy, and social and economic studies on ITS-related topics. Papers focusing on successful implementations, practical challenges, lessons learned, and policy considerations are encouraged.

If you are interested in submitting a paper, please contact the Editor-in-Chief, Dr. Fei-Yue Wang, at [itseic@gmail.com](mailto:itseic@gmail.com) for more information on submission procedures.

### **CALL FOR VOLUNTEERS**

An editorial board for the new Magazine is now being established. If you are interested in serving as an Associate Editor, please send your curriculum vitae to the Editor-in-Chief, Dr. Fei-Yue Wang at [itseic@gmail.com](mailto:itseic@gmail.com) along with a cover letter indicating the topics on which you feel qualified to serve as an Associate Editor.

The Editor-in-Chief is Dr. Fei-Yue Wang. Dr. Wang is a Professor of Systems and Industrial Engineering at the University of Arizona. He also directs the University's Program for Advanced Research in Complex Systems and the Key Laboratory of Complex Systems and Intelligence Science at the Chinese Academy of Sciences. Dr. Wang is the Immediate Past President of the ITS Society.



## IEEE ITSS Best PhD Dissertation Award

## IEEE ITSS Best Practice Award for Engineers



### Call for Proposals

#### IEEE ITSS Best PhD Dissertation Award

##### Purpose and Selection Criteria

The IEEE ITSS Best PhD Dissertation Award is given annually for the best dissertation in any ITS area that is innovative and relevant to practice. This award is established to encourage doctoral research that combines theory and practice, makes in-depth technical contributions, or is interdisciplinary in nature, having the potential to contribute to the ITSS and broaden the ITS topic areas from either the methodological or application perspectives.

##### Application material

Each application must consist of the following material:

1. A doctoral dissertation written by the applicant in any language no more than 18 months prior to the submission deadline and not previously submitted.
2. A summary of the dissertation in English of up to 3 pages in length written by the PhD candidate highlighting the significance of the problem, the technical approach taken, application context and potential, and the scope of the dissertation.
3. A self-contained paper in English based on the dissertation written primarily by the PhD. candidate following the Transactions on ITS regular paper requirements.
4. A letter of recommendation from the applicant's dissertation advisor that comments on the significance of the research, attests to the originality of the work, and comments on the engagement of the student in the field of ITS and the ITSS.

#### IEEE ITSS Best Practice for Engineers

##### Purpose. and Selection Criteria

The IEEE ITSS Best Practice Award for ITS Engineers is given annually for ITS engineers and teams who have developed and deployed successful ITS systems or implementations. This award is established to recognize, promote, and publicize major application innovations with real-world impact.

##### Application material

Each application must consist of the following material:

1. A 5-page summary of the ITS application providing sufficient detail for evaluation of the novelty and impact of the work
2. At most 3 letters of recommendation from the customers or users of the developed application attesting to its significance and practical impact

##### Application and Selection Process for either Award

Please upload the application packet in pdf-format before May 1, 2008 to the following Internet address:

<https://xchange.mrt.uni-karlsruhe.de/itssAward/>

Applications by email are not accepted.

Dedicated selection committees will evaluate the applications for the IEEE ITSS Awards and propose candidates for final approval from the ITSS Board of Governors. The first prize winners will receive awards of US\$ 1000 each. The second prize winner of the *Best PhD Dissertation Award* will receive US\$ 500. Award certificates will be given out at the ITSS Conference in Beijing where the recipients will be asked to give a presentation of their work.

## ITS Workshops

### *AIDE Final Workshop and Exhibition: “Towards Future Automotive HMI”*

*15-16 April 2008*

*Gothenburg, Sweden*



The AIDE Integrated Project is organising its Final Workshop and Exhibition which aims to bring together all stakeholders in the area of automotive HMI research, such as automotive HMI experts and developers; senior representatives at companies involved in automotive HMI R&D and representatives from the European Commission.

During the workshop, the AIDE project concept, as well as the results of the AIDE project, will be presented and discussed. Information from related efforts outside the project (European and worldwide) will be presented, and future challenges and research needs within automotive HMI will be discussed. The workshop will be accompanied by an exhibition, where the three AIDE prototype vehicles will be demonstrated, together with an extensive selection of other project results, presented by means of demonstrations or posters.

For more information on this event please visit: [www.aide-eu.org](http://www.aide-eu.org)



### **Workshop on Future Perspectives of Cooperative Systems for Road Safety**

**21-22 January 2008,**

**Stuttgart, Germany**

The joint SAFESPOT and WATCH-OVER workshop aims to bring together all stakeholders in the area of the cooperative safety (V2V and V2I) including the special role of vulnerable road users (VRU).

The workshop's program will include presentations by key experts both of the projects' consortia and of external attendees, such as the European Commission and EUCAR as well as interactive working groups involving all interested participants. Join the workshop and watch the state of the art presentations on cooperative systems research, meet key stakeholders and industry's representatives from around Europe and participate to open discussions with National and European safety organisations officials.

For more information on this event please visit: [www.safespot-eu.org](http://www.safespot-eu.org)

## Abstracts of Papers

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*IEEE Transactions on Intelligent Transportation Systems*, vol.8, no.4, Dec. 2007

Leviakangas, P.; Haajanen, J.; Alaruikka, A.-M., "Information Service Architecture for International Multimodal Logistic Corridor," pp.565-574

Abstract: This paper describes how an information service architecture was developed for the international multimodal logistic corridor Pol-Corridor. It describes how the information services needed by Pol-Corridor were identified and how these service needs were transformed into system component requirements. An analysis was carried out to investigate how existing off-the-shelf and already-operational systems can fulfil these information needs by "mapping" several information systems into the service architecture. The theory and trends in the research of software architectures are discussed in order to explain the foundation for defining the service architecture for Pol-Corridor. European Union policies concerning interoperability of technical systems in international transport, as well as their efficiency, are also discussed in this paper.

\*\*\*

Celikoglu, H. B., "A Dynamic Network Loading Model for Traffic Dynamics Modeling," pp.575-583

Abstract: The need for a better representation of traffic dynamics and the reproduction of traffic flow motion on the network have been the main reasons to seek solutions for dynamic network loading (DNL) models. In this paper, a neural network (NN) approximator that supports the DNL model is utilized to model link flow dynamics on a sample network. The presented DNL model is constructed with a linear travel time function for link performances and an algorithm written with a set of rules considering the constraints of link dynamics, flow conservation, flow propagation, and boundary conditions. Each of the three selected NN methods, i.e., feedforward back-propagation NN, radial basis function NN, and generalized regression NN, is utilized in the integrated model structure in order to determine the most appropriate one, and hence, three DNL processes are simulated. Traffic dynamics such as inflow rates, outflow rates, and delays are selected to evaluate the performance of the proposed model.

\*\*\*

Shladover, S. E., "PATH at 20—History and Major Milestones," pp.584-592

Abstract: The California Partners for Advanced Transit and Highways (PATH) Program was founded in 1986, as the first research program in North America focused on the subject now known as intelligent transportation systems (ITS). This paper reviews the history of the founding of PATH and of the national ITS program in the U.S., providing perspective on the changes that have occurred during the past 20 years.

\*\*\*

Sekizawa, S.; Inagaki, S.; Suzuki, T.; Hayakawa, S.; Tsuchida, N.; Tsuda, T.; Fujinami, H., "Modeling and Recognition of Driving Behavior Based on Stochastic Switched ARX Model," pp.593-606

Abstract: This paper presents the development of the modeling and recognition of human driving behavior based on a stochastic switched autoregressive exogenous (SS-ARX) model. First, a parameter estimation algorithm for the SS-ARX model with multiple measured input-output sequences is developed based on the expectation-maximization algorithm. This can be achieved by extending the parameter estimation technique for the conventional hidden Markov model. Second, the developed parameter estimation algorithm is applied to driving data with the focus being on driver's collision avoidance behavior. The driving data were collected using a driving simulator based on the cave automatic virtual environment, which is a stereoscopic immersive virtual reality system. Then, the parameter set for each driver is obtained, and certain driving characteristics are identified from the viewpoint of

switched control mechanism. Finally, the performance of the SS-ARX model as a behavior recognizer is examined. The results show that the SS-ARX model holds remarkable potential to function as a behavior recognizer.

\*\*\*

Caraffi, C.; Cattani, S.; Grisleri, P., "Off-Road Path and Obstacle Detection Using Decision Networks and Stereo Vision," pp.607-618

Abstract: Autonomous driving in off-road environments requires an exceptionally capable sensor system, particularly given that the unstructured environment does not provide many of the cues available in on-road environments. This paper presents a complex vision system, which is able to provide the two basic sensorial capabilities needed by autonomous vehicle navigation in extreme environments: obstacle detection and path detection. A variable-width-baseline (up to 1.5 m) single-frame stereo system is used for pitch estimation and obstacle detection, whereas a decision-network approach is used to detect the drivable path by a monocular vision system. The system has been field tested on the TerraMax vehicle, which is one of the only five vehicles to complete the 2005 Defense Advanced Research Projects Agency (DARPA) Grand Challenge course.

\*\*\*

Krotosky, S. J.; Trivedi, M. M., "On Color-, Infrared-, and Multimodal-Stereo Approaches to Pedestrian Detection," pp.619-629

Abstract: This paper presents an analysis of color-, infrared-, and multimodal-stereo approaches to pedestrian detection. We design a four-camera experimental testbed consisting of two color and two infrared cameras for capturing and analyzing various configuration permutations for pedestrian detection. We incorporate this four-camera system in a test vehicle and conduct comparative experiments of stereo-based approaches to obstacle detection using unimodal color and infrared imageries. A detailed analysis of the color and infrared features used to classify detected obstacles into pedestrian regions is used to motivate the development of a multimodal solution to pedestrian detection. We propose a multimodal trifocal framework consisting of a stereo pair of color cameras coupled with an infrared camera. We use this framework to combine multimodal-image features for pedestrian detection and to demonstrate that the detection performance is significantly higher when color, disparity, and infrared features are used together. This result motivates experiments and discussion toward achieving multimodal-feature combination using a single color and a single infrared camera arranged in a cross-spectral stereo pair. We demonstrate an approach to registering multiple objects across modalities and provide an experimental analysis that highlights issues and challenges of pursuing the cross-spectral approach to multimodal and multiperspective pedestrian analysis.

\*\*\*

Rakha, H.; El-Shawarby, I.; Setti, J. R., "Characterizing Driver Behavior on Signalized Intersection Approaches at the Onset of a Yellow-Phase Trigger," pp.630-640

Abstract: This paper involves a field test on 60 test participants to characterize driver behavior (perception–reaction time (PRT) and stopping/running decisions) at the onset of a yellow phase. Driver behavior is analyzed for five trigger distances that are measured from the vehicle position at the start of the yellow indication to the stop bar. This paper demonstrates that the 1.0-s 85th-percentile PRT that is recommended in traffic-signal-design procedures is valid and consistent with the field observations. Furthermore, this paper clearly shows that brake PRTs are impacted by the vehicle's time to intersection (TTI) at the onset of a yellow-indication introduction. This paper also demonstrates that either a lognormal or a beta distribution is sufficient to model the stochastic nature of the brake PRT. In terms of stopping decisions, this paper demonstrates that the probability of stopping varies from 100% at a TTI of 5.5 s to 9% at a TTI of 1.6 s. This paper also indicates a decrease in the probability of stopping for male drivers when compared with female drivers. Furthermore, this study suggests that drivers 65 years of age and older are significantly less likely to clear the intersection at short yellow-indication trigger distances when compared with other age groups. The dilemma zone for the less than 40 year old group is found to range from 3.9 to 1.85 s,

whereas the dilemma zone for the greater than 70 year old group is found to range from 3.2 to 1.5 s.

\*\*\*

Dao, T.-S.; Leung, K. Y. K.; Clark, C. M.; Huissoon, J. P., "Markov-Based Lane Positioning Using Intervehicle Communication," pp.641-650

Abstract: The majority of today's navigation techniques for intelligent transportation systems use Global Positioning Systems (GPS) that can provide position information with bounded errors. However, due to the low accuracy that is experienced with standard GPS, it is difficult to determine a vehicle's position at lane level. Using a Markov-based approach based on sharing information among a group of vehicles that are traveling within communication range, the lane positions of vehicles can be found. The algorithm's effectiveness is shown in both simulations and experiments with real data.

\*\*\*

Nedevschi, S.; Vancea, C.; Marita, T.; Graf, T., "Online Extrinsic Parameters Calibration for Stereovision Systems Used in Far-Range Detection Vehicle Applications," pp.651-660

Abstract: This paper presents a high-accuracy online calibration method for the absolute extrinsic parameters of a stereovision system that is suited for far-distance, vision-based vehicle applications. The method uses as prior knowledge the intrinsic parameters and the relative extrinsic parameters (relative position and orientation) of the two cameras, which are calibrated using offline procedures. These parameters remain unchanged if the two cameras are mounted on a rigid frame (stereo rig). The absolute extrinsic parameters define the position and orientation of the stereo system relative to a world coordinate system. They must be calibrated every time after mounting the stereo rig in the vehicle and are subject to changes due to static load factors for the used car setup. The proposed method is able to perform online the estimation of the absolute extrinsic parameters by driving the car on a flat and straight road, parallel with the longitudinal lane markers. The edge points of the longitudinal lane markers are extracted after a 2-D image classification process and reconstructed by stereovision in the stereo-rig coordinate system. After filtering out the noisy 3-D points, the normal vectors of the world coordinate system axes are estimated in the stereo-rig coordinate system by 3-D data fitting. The output of the method is the height and the orientation of the stereo cameras that are relative to the world coordinate system.

\*\*\*

Antoniou, C.; Ben-Akiva, M.; Koutsopoulos, H. N., "Nonlinear Kalman Filtering Algorithms for On-Line Calibration of Dynamic Traffic Assignment Models," pp.661-670

Abstract: An online calibration approach that jointly estimates demand and supply parameters of dynamic traffic assignment (DTA) systems is presented and empirically validated through an extensive application. The problem can be formulated as a nonlinear state-space model. Because of its nonlinear nature, the resulting model cannot be solved by the Kalman filter, and therefore, nonlinear extensions need to be considered. The following three extensions to the Kalman filtering algorithm are presented: 1) the extended Kalman filter (EKF); 2) the limiting EKF (LimEKF); and 3) the unscented Kalman filter. The solution algorithms are applied to the on-line calibration of the state-of-the-art DynaMIT DTA model, and their use is demonstrated in a freeway network in Southampton, U.K. The LimEKF shows accuracy that is comparable to that of the best algorithm but with vastly superior computational performance. The robustness of the approach to varying weather conditions is demonstrated, and practical aspects are discussed.

\*\*\*

Allaby, P.; Hellinga, B.; Bullock, M., "Variable Speed Limits: Safety and Operational Impacts of a Candidate Control Strategy for Freeway Applications," pp.671-680

Abstract: Variable-speed limit sign (VSLS) systems enable transportation managers to dynamically change the

posted speed limit in response to prevailing traffic and/or weather conditions. Although VSLs have been implemented in a limited number of jurisdictions throughout the world, there is currently very limited documentation that describes quantitative safety and operational impacts. Furthermore, the impacts reported are primarily from systems in Europe and may not be directly transferable to other jurisdictions such as North America. This paper presents the results of an evaluation of a candidate VSL system for an urban freeway in Toronto, ON, Canada. The evaluation was conducted using a microscopic simulation model combined with a categorical crash potential model for estimating safety impacts.

\*\*\*

Lam, W. W. L.; Pang, C. C. C.; Yung, N. H. C., "Vehicle-Component Identification Based on Multiscale Textural Couriers," pp.681-694

**Abstract:** This paper presents a novel method for identifying vehicle components in a monocular traffic image sequence. In the proposed method, the vehicles are first divided into multiscale regions based on the center of gravity of the foreground vehicle mask and the calibrated-camera parameters. With these multiscale regions, textural couriers are generated based on the localized variances of the foreground vehicle image. A new scale-space model is subsequently created based on the textural couriers to provide a topological structure of the vehicle. In this model, key feature points of the vehicle can significantly be described based on the topological structure to determine the regions that are homogenous in texture from which vehicle components can be identified by segmenting the key feature points. Since no motion information is required in order to segment the vehicles prior to recognition, the proposed system can be used in situations where extensive observation time is not available or motion information is unreliable. This novel method can be used in real-world systems such as vehicle-shape reconstruction, vehicle classification, and vehicle recognition. This method was demonstrated and tested on 200 different vehicle samples captured in routine outdoor traffic images and achieved an average error rate of 6.8% with a variety of vehicles and traffic scenes.

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## IEEE ITS Society Officers and Committee Chairs

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### Officers

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| President:                    | William T. Scherer, U. of Virginia, Charlottesville, VA, USA |
| President-Elect:              | Fei-Yue Wang, CAS, China, and U. of Arizona, Tucson, AZ, USA |
| VP Administrative Activities: | Daniel J. Dailey, U. of Washington, Seattle, WA, USA         |
| VP Conference Activities:     | Ümit Özgüner, The Ohio State U., Columbus, OH, USA           |
| VP Financial Activities:      | Sudarshan Chawathe, U. of Maine, Orono, ME, USA              |
| VP Member Activities:         | Christoph Stiller, Universität Karlsruhe, Karlsruhe, Germany |
| VP Publication Activities:    | Jason Geng, Rockville, MD, USA                               |
| VP Technical Activities:      | Daniel Zeng, U. of Arizona, Tucson, AZ, USA                  |
| Transactions Editor:          | Alberto Broggi, Università di Parma, Parma, Italy            |

### Committee Chairs

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|-------------------------------|----------------------|
| Awards:                       | Chelsea C. White III |
| Conferences and Meetings:     | Ümit Özgüner         |
| Constitution and Bylaws:      | Daniel J. Dailey     |
| Fellow Evaluation:            | Petros Ioannou       |
| Finance:                      | Sudarshan Chawathe   |
| History:                      | Rye Case             |
| Long-Range Planning:          | Pitu Mirchandani     |
| Member Activities:            | Christoph Stiller    |
| Nominations and Appointments: | Fei-Yue Wang         |
| Publications:                 | Jason Geng           |
| Standards:                    | Jason Geng           |
| Student Activities:           | Shuming Tang         |
| Technical Activities:         | Daniel Zeng          |