



INTELLIGENT TRANSPORTATION SYSTEMS

<http://its.ieee.org>



IEEE ITS SOCIETY

NEWSLETTER

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SOCIETY NEWS

From the Editor

Javier Sanchez-Medina

Dear readers,

Here you have a very well loaded new issue of your Newsletter! Along with a lot of CFPs you will see very interesting announcements. Please, pay attention to our ITSS Educational activities, there is an open course there you can register for.

We are also pushing hard in this issue for our brand new Transactions on Intelligent Vehicles! We need your help there: Please, spread the voice!

As you will see, there is an awful lot of things happening in our society/field! So, please, do consider joining and being part of the historical days we live! For instance, we have shared a keynote from a world-class leader on Transportation Electrification, Prof. Philip Krein. We will tell stories to our grand children about these days, but for the moment being, I am probably not the only one dealing difficult questions like "Daddy, why don't they take away all gas powered vehicles and don't let but electric cars?", without a convincing reply to offer.

Enjoy and please send us feedback!

- Javier Sanchez-Medina



IEEE ITS Society President Message



Getting Involved in IEEE Future Direction Initiatives!

Daniel Zeng

Dear IEEE ITS Society members:

The IEEE Intelligent Transportation Systems Conference (ITSC) is the annual flagship conference of our society. IEEE ITSC 2016 is only a month away and I do hope to see many of you at the meeting! All the technical sessions will be held in the beautiful Convention Center of Windsor Oceanico Hotel, a short walk from the beach in Rio de Janeiro. For conference details, please visit <https://web.fe.up.pt/~ieeeditc2016/>.

At the ITSC 2016 Gala Dinner, an IEEE Technical Field Award, the IEEE Transportation Technologies award, will be presented. This year's winner of this prestigious award is one of our own, Professor Petros Ioannou from University of Southern California, who currently serves as the Editor in Chief of IEEE Transactions on ITS, a premium title from our society. Congratulations to Petros! IEEE President Barry Shoop will be joining us at the Gala Dinner as well.

At ITSC 2016, we will also announce the winners of several IEEE awards, including the IEEE ITS Institutional Lead Award, the IEEE ITS Outstanding Research Award, the IEEE ITS Outstanding Application Award, and the IEEE ITSS Best Dissertation Award (<http://sites.ieee.org/itss/itss-awards/>). Furthermore, the IEEE Standards Association (<http://standards.ieee.org/>) will organize a tutorial on IEEE's standards efforts and processes, including specific initiatives on various new technologies such as 5G mobile networks. You are strongly encouraged to attend this tutorial to learn more about what IEEE has been doing with technology standards and how the ITS community could lead and actively participate in some of these efforts with direct relevance to ITS. The ITS Society leadership believes that standards and other forms of intellectual properties going beyond technical papers could present huge opportunities for our society and ITS researchers.

As the world's largest technical professional organization dedicated to advancing technology, the IEEE recognizes the fact that emerging technologies typically cut across multiple fields of studies and that their potentials can only be realized through true partnership and interactions between technical communities and the general public. As such, the IEEE has set up a formal

mechanism called “Future Directions Initiatives” to encourage joint efforts from multiple IEEE technical communities. I strongly encourage our members to find out what these initiatives are about through <http://www.ieee.org/about/technologies/index.html>. More importantly, many of these initiatives have direct ITS relevance. Here is just a partial list: Big Data, Cybersecurity, Internet of Things, and Smart Cities. If you find some of these initiatives particularly interesting and want to contribute, feel free to drop me an email at zeng@email.arizona.edu. Right now, the ITS Society is underrepresented in several of these initiatives and we would love to have more of our members to engage in these initiatives actively. Also, if you are passionate about any topics that could become candidates for future “Future Direction Initiatives,” you are welcome to email me as well. Keep in mind that such topics need to have broader appeals than usual ITS topics such that at least a couple of other IEEE societies or councils could be collaborating with us. Let’s get involved in IEEE Future Direction Initiatives!

I look forward to meeting many of you at ITSC 2016!

Sincerely,

Daniel Zeng
President, IEEE ITS Society

Special Message from the IEEE ITS Society President

Dear IEEE ITS Society Colleagues,

As many of you may have already heard, there is a proposal coming out of the highest levels of the IEEE (through the IEEE2030 Initiative) to make major structural changes to the IEEE Board of Directors. These changes, through a proposed IEEE Constitutional Amendment, will be formally voted on by all the voting members of the IEEE in the Fall 2016 IEEE Ballot.

At the June 2016 meeting of the ITS Society Board of Governors (BOG), co-located with IV 2016, after careful evaluation of pros and cons of these proposed changes, the ITS Society BOG voted unanimously on the following motion:

"The IEEE ITS Society BOG strongly opposes the IEEE Constitutional Changes and Optimized Board Structure proposed by the IEEE Board of Directors because the proposed changes will significantly reduce the technical communities' voice in governing the IEEE. The BOG recommends each ITSS member take this BOG analysis and position into account when considering the vote in the Fall 2016 Ballot. The ITS Newsletters will be used to provide an analysis of the pros and cons of the proposed changes, along with the BOG recommendation of opposing these proposed changes."

The weblink below contains links to the proposed amendment and official summaries of statements in support of and in opposition to the amendment.

https://www.ieee.org/about/corporate/election/2016_constitutional_amendment.html

The ITS Society leadership recognizes the fact that how to vote on the proposed IEEE Constitutional Amendment is entirely each individual IEEE member's decision. In the remainder of this message, we would like to share with you some perspectives from the viewpoints of IEEE societies/councils. The IEEE Technical Activities Board (TAB), comprised of all 45 IEEE societies/councils, has created an adhoc committee, called TABin2030, to study the impact of proposed governance changes on IEEE societies/councils. Below is a summary of the findings as reported by the TABin2030 committee. The ITS Society leadership is in full agreement with these findings.

Proposed Amendment Major Changes (endorsed by the IEEE Board of Directors (BoD)):

1. Separates Delegates (who represent members) from Directors (the legal controlling authority of IEEE) and relegates definition of Directors to Bylaws (controlled by the BoD).
2. Adds paid Executive Director (ED) to the BoD. ED is already compelled to participate in meetings by Bylaws

Pros/Opportunities (as viewed by Proponents):

- BoD can be resized and governance structure changed quickly without interacting with volunteer leaders or members ("nimble")
- Separating Delegates from Directors could allow more balanced geographic representation on the Assembly
- Could allow BoD to reduce workload and shift to more strategic role

Cons/Risks (as viewed by Opponents):

- IEEE leadership could become disconnected from members and their activities by shifting workload to an operational board while retaining final authority
- ED on BoD erodes the nature of the volunteer-led IEEE, would become most senior director with longer tenure and possibly more influence than volunteers
- Geographic Membership and Societies/Councils could go from over 2/3 BoD seats to zero, despite generating virtually all revenue
- Subsequent governance changes could be made in secret by BoD, and announced once enacted, with no input or approval beyond BoD and possibly the Assembly
- Members lose control of IEEE governance: Members own the Constitution (2/3 vote of members to change), while the BoD owns the Bylaws (2/3 BoD vote, no external notice needed to change); IEEE could change from member control to executive control
- Amendment is incomplete without accompanying Bylaw changes – should consider package

Serious Process Concerns Have Arisen:

- Changes to the Constitution are fundamental to the nature of the IEEE: open discussion and ethics policies appear to be violated, limiting perspectives communicated to members; censorship and suppression of opposing points of view are not in the spirit of IEEE
- Advocates for the Amendment are adjudicating and editing opposition statements (authors, titles, and content) on ballot (see link below); may violate IEEE conflict of interest (COI) policy
- IEEE Officers, BoD, and IEEE Legal have been unable to articulate the specific governance policies that allow the censorship and potential COI. IEEE should err on the side of openness.

TABin2030 concludes that the Amendment without Bylaws is premature, and prefers a complete solution, with bedrock principles enshrined in the Constitution, and discussed in an open and fair process. Implementation of proposed structural governance changes requires trust in the good judgment of executive leadership, shaken by the process issues. Among TAB Society/Council governing boards expressing an opinion, 24-1 are against the Amendment.

To conclude, IEEE ITS Society Colleagues, the ITS Society leadership urges you to evaluate and vote on the Fall 2016 IEEE Ballot, while considering the ITS Board of Governor's **strong opposition to the proposed IEEE Constitutional Amendment.** IEEE is at a cross-roads. Every vote will count.

Respectfully yours,

Daniel Zeng
President, IEEE Intelligent Transportation Systems Society (2016-2017)

Join the IEEE ITS Society



The IEEE Intelligent Transportation Systems Society (ITSS) is waiting for you.

[Join Now](#)

Explore theoretical, experimental, and operational aspects of Electrical Engineering and Information Technologies as applied to ITS, Intelligent Vehicles, and Vehicle-Infrastructure Cooperation. Access the IEEE Transactions on ITS, the leading publication in intelligent transportation, and the up-and-coming ITS Magazine. Follow the latest trends in autonomous and cooperative driving, driving assistance systems, transportation communications, and advanced transportation sensing and analysis.

<http://its.ieee.org/>

Comprised of professionals who share your technical interests, joining (ITSS) allows you to deepen ties to your technical community and take advantage of specialized opportunities. Join today and:

- Stay current with developments in your field;
- Connect with leading experts and colleagues;
- Attend specialized conferences, share knowledge and network with your peers
- Receive discounts on exclusive publications; and most importantly
- Grow your career

[Join NOW](#) for just US\$35.00 (US\$18.00 for students)

The ITS Society is one of youngest, but a rapidly growing, IEEE society. Members of ITSS receive the Society's IEEE Intelligent Transportation System Magazine quarterly in print and through IEEE Xplore.

Join the IEEE ITS Society

Other Society benefits include:

- FREE electronic access, through IEEE Xplore, to the IEEE Transactions on Intelligent Transportation Systems;
- Networking opportunities with technical experts around the world:
 - ITSS sponsors over 10 [Conferences](#), including the premier flagship conferences: the Intelligent Transportation System Conference ([ITSC](#)) and the Intelligent Vehicles Symposium ([IV](#));
 - ITSS has 15 [Technical Committees](#), where you can participate together with technical experts;
 - ITSS has new [chapters](#) forming around the world, where you can participate in local activities;
- Professional Recognition through prestigious [ITSS Awards](#):
 - [IEEE ITS Outstanding Research Award](#);
 - [IEEE ITS Outstanding Application Award](#);
 - [IEEE ITS Institutional Lead Award](#);
 - [IEEE ITSS Best Ph.D. Dissertation Award](#);
- Discounts on print subscriptions, co-sponsored journals and Society conferences and workshops.

Regards,

Brendan Morris
Vice-President
IEEE ITSS Member Activities

IEEE Transactions on Intelligent Vehicle and Intelligent Transportation Seeking to Publish Your Research

IEEE Transactions on Intelligent Vehicles (T-IV) publishes peer-reviewed articles that provide innovative research concepts and application results, report significant theoretical findings and application case studies, and raise awareness of pressing research and application challenges in the area of intelligent vehicles, especially in regard to automated vehicles. Sponsored by four IEEE societies (Intelligent Transportation Systems Society, Vehicle Technology Society, Robotics and Automation Society and consumer Electronic Society), the Transactions on Intelligent Vehicle commenced its first publication in March 2016 and will publish four issues annually.

Paper Submission: Prospective authors are invited to submit original contributions or survey papers for review through Manuscript Central at <http://mc.manuscriptcentral.com/t-iv>. Topics of interest include (but are not limited to):

- Advanced Driver Assistance Systems
- Automated Vehicles
- Active and Passive Vehicle Safety
- Vehicle Environment Perception
- Driver State and Intent Recognition
- Eco-driving and Energy-efficient Vehicles
- Cooperative Vehicle Systems
- Collision Avoidance
- Pedestrian Protection
- Proximity Detection Technology
- Assistive Mobility Systems
- Proximity Awareness Technology
- Autonomous / Intelligent Robotic Vehicles
- IV related Image, Radar, Lidar Signal Processing
- Information Fusion
- Vehicle Control
- Human Factors and Human Machine Interaction
- IV technologies in Electric and Hybrid Vehicles
- Novel Interfaces and Displays
- Intelligent Vehicle Software Security

IEEE TRANSACTIONS ON INTELLIGENT VEHICLES

A PUBLICATION OF
THE IEEE INTELLIGENT TRANSPORTATION SYSTEMS SOCIETY
THE IEEE VEHICULAR TECHNOLOGY SOCIETY
THE IEEE ROBOTICS AND AUTOMATION SOCIETY
THE IEEE CONSUMER ELECTRONICS SOCIETY

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The general description about the journal and guidelines for electronic submission can be found on <http://sites.ieee.org/itss/publications/transactions-iv/>. Please contact Editor in Chief Professor Umit Ozguner of The Ohio State University for questions (cozguner@oztinc.com)



ITSS EDU



The IEEE Intelligent Transportation Systems Society (IEEE ITSS) Educational Activities Board (EAB) fosters programs for the growth of the ITSS educational related activities, recommending policies for educational development; coordinating the Distinguished Lecture Series of the society and approving plans for educational support activities.

We aim at serving the IEEE ITS members in educational pursuits supporting them with high-quality opportunities for education on the topic, providing them with information to understand prospects and career paths in ITS.

To expand the ITS society's offerings and opportunities in future industries of relevance, it is a pleasure to present the **ITSS EDU** Platform <http://edu.itss.cicei.org> that contains courses covering specific topics of interest in the ITS area.

We hope you that you will find them interesting and useful to gain valuable and meaningful skills in Intelligent Transportation Systems.

Dr. Cristina Olaverri Monreal,
Vice President IEEE ITSS Educational Activities



IEEE CRFID Educational Mega-Challenge 2017

To engage and interest undergraduates, their advisors and even graduate students, the new **IEEE Council on RFID (CRFID)** is offering a competition that addresses real-world problems and is

- Open to any accredited, degree-program educational institution
- Teams to be composed of at least one IEEE student member and at least one advisor who is an IEEE member

2017 CHALLENGE: SMART CITIES

The 2017 challenge focuses on the use of radio frequency identification **RFID** in **Smart Cities**. Teams will be rated on how they plan and evaluate a solution that incorporates RFID technology and systems.

Teams are asked to prepare as if responding to a request for proposal (RFP).

- The team will choose a city and a problem it faces that can be addressed by a smart city solution (e.g., traffic flow, mass transit, infrastructure support, revenue collections, parks management, etc.)
- The team will identify a solution that includes the use of RFID.
For support from the [RAIN Alliance](#), passive UHF RFID must be included in the solution.
- The team will identify the steps needed to implement the solution.
- Submissions must be **an 8-10-page summary**, which includes:
 - Problem statement
 - Proposed solution
 - Differentiator (why this solution vs. others)
 - Resource summary (Personnel and equipment)
 - Team summary – bios, function
- Optional bonus points for:
 - A paper prepared for the peer-reviewed conference proceedings.
 - YouTube video or privately available video /slide show.
 - Partnering with an Industry Advisor from RAIN Alliance
 - Partnering with an Industry Advisor
 - Use of other resources:
 - IEEE's Smart Cities initiative has a repository of [publications](#)
 - the US federal government recently [announced](#) it is committing over \$80 million – led by NSF with a \$60M commitment over two years – toward the Smart Cities Initiative
 - equipment sponsored by a RAIN Alliance member

DEADLINE: JANUARY 31, 2017

Judges from IEEE [CRFID](#) and the [RAIN Alliance](#) will select the **top three** teams to present at the [IEEE RFID 2017](#) conference, at the [RFID Journal Live!](#) event in [Phoenix, Arizona](#) in [May 2017](#).

Up to \$5,000 (USD) student travel support is available from IEEE CRFID and the RAIN Alliance. Alliance members will prep presenters whose solution uses passive UHF.

For more information, please contact Emily Sopensky, President, Council on RFID. e.sopensky@ieee.org

ITS Podcast New Episodes and Information

Please, circulate this!

ITS Podcast Episode 35: IEEE IV 2016 Special Issue with Coeglinh from Volvo cars and Anna Nilsson-Ehle from SAFER

This is episode 35 for July 2016, a special issue about the still warm Intelligent Vehicles Symposium 2016 that has just happened in Sweden a few days ago. We have been there and we have prepared such a good selection of contents around it. We have one of its keynotes to speak about Volvo's vision on automated driving. He is Erik Coeglinh, Senior Technical Leader for Safety and Driver Support Technologies at Volvo Cars. He talked about Volvo's exciting project Autopilot that will be starting as soon as next year in Gothenburg, the city where IV2016 was held.

We also talked a little bit with Anna Nilsson-Ehle, Director of SAFER, host organization for IV2016, together with Chalmers university. It is a very interesting hub organization connecting together a big number of stakeholders on mobility safety.



ITS Podcast Episode 36: Transp. Electrification with Philip Krein

This episode 36, for September 2016. We have included a special content this time: Nothing less than the Professor Philip Krein's keynote talk at our last ITS Society's ITSC2015 conference in Spain. Philip Krein is Chair of the IEEE Transportation Electrification Community and delivered a very interesting and provocative talk titled "Leveraging High-Performance Electric Transportation for Intelligent Systems".

Volunteer Recruiting Campaign:

We are recruiting volunteers for the ITS Podcast. If you like our show and you think you can share some of your time with us, please let us know! Send us an email to itsspodcast@gmail.com.

Subscribe to the Youtube Channel of the IEEE ITS Podcast:

We are launching our new YouTube Channel [here](#). We want you as our subscriber!

Please, check it out and feedback the show with your comments at the podcast website or at our social networking accounts: [LinkedIn](#), [Twitter](#) (@ITSPodcast), [Facebook](#), [Google+](#), [Youtube](#)

Prof. Javier J. Sanchez-Medina
EiC IEEE ITS Podcast

2016 IEEE Intelligent Vehicles Symposium – Final Report



2016 IEEE Intelligent Vehicles Symposium

June 19-22, 2016 | Lindholmen Science Park, Gothenburg, Sweden

Sponsored by the IEEE Intelligent Transportation Systems Society



Hosted by



Sponsored by



General Host:

Anna Nilsson-Ehle,
SAFER, Sweden



General Chair:

Jonas Sjöberg,
Chalmers, Sweden



Program Chair:

Brendan Morris,
University of Nevada,
Las Vegas, USA

The IV16 was hosted by Chalmers University of Technology and SAFER Vehicle and Traffic Safety Centre on June 19-22, 2016. The conference was a true success and earned great reviews from both delegates and exhibitors and sponsors.

IEEE Intelligent Vehicles Symposium is, by tradition, a single track conference with rather few oral talks and a high number of poster presentations. This allows the participants to move around and interact with the poster presenters. This year's edition featured modifications to increase visibility and interaction further: i) Poster "Spotlight Presentations" and ii) Oral Posters.

The posters were divided into three parallel poster sessions depending on the topic of the papers. Each session started with a one-minute single-slide "Spotlight Presentation" of each poster (slide submitted prior to the conference to have quick transition between the presenters). The three poster sessions took place in separate rooms, each one large enough so that the posters were placed with distance to allowed 10-15 participants at each poster without interference with the neighboring posters.

Also, since the oral presentations were single track with an audience of close to 600 persons, it was only possible to take short questions at the presentations. Instead, the speakers also participated with posters where they could discuss in more depth with the participants.

The feedback to these changes has been clearly positive.



Technical Program

In total 412 contributions from 37 different countries were submitted, which also was record high for IV. The acceptance rate was 51% so the selected papers held very good quality. 206 papers (28 oral presentations and 178 posters) were included in the program with 742 authors from 29 different countries. Germany was the far most submitting country. More details on the program, and the proceedings, can be found at www.iv2016.org.

Keynotes

The keynote speakers were selected to give a distribution over continents and topics, academy, authorities, and industry.



Mr Anders Kellström & Dr. Christian Grante from Volvo Group AB, the Platinum sponsor, gave a talk with the title *Automation will completely redefine commercial transport* solutions where they gave an overview of the expected changes, both technical and business aspects, for commercial transport industry due to the coming autonomous driving.

Mr. Matt Moore, Highway Loss Data Institute, Arlington, USA gave a talk with the title *Conclusions on autonomous emergency braking systems and other advanced driver assistance technologies* where he surprised us with interesting, not always obvious, facts obtained from the insurance cost statistics.

Dr. Jeroen Ploeg, TNO, The Netherlands, with the talk *i-GAME: From platooning to cooperative automated maneuvering*, where he spoke about the organizing and outcome of the GCDC competition where some ten teams from different European universities competed in cooperative driving tasks.

Additional to the keynote talks there were two, shorter, invited talks by the gold sponsors. Dr. Erik Coelinge from Volvo Cars spoke about their initiative to offer autonomous vehicles to normal

customers in his talk *Self-driving cars in the hands of real customers on normal roads – safety and comfort*. Dr. Hadj Hamma Tadjine, from IAV, with the talk *Connected and Autonomous Vehicles: challenges & opportunities* spoke about general changes to come.

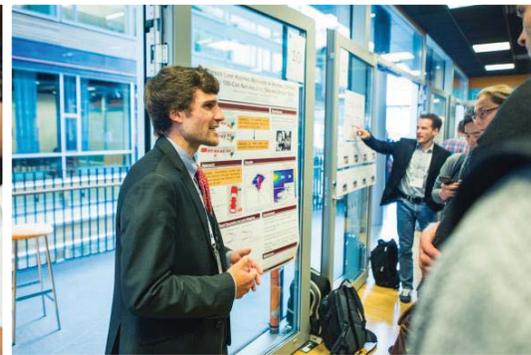
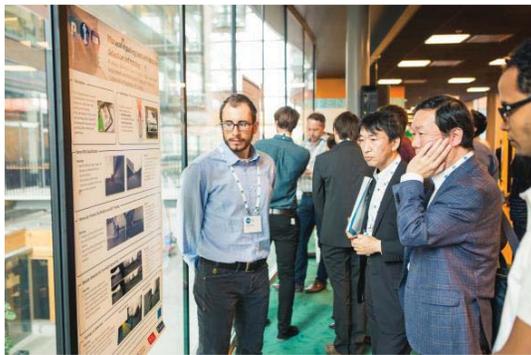
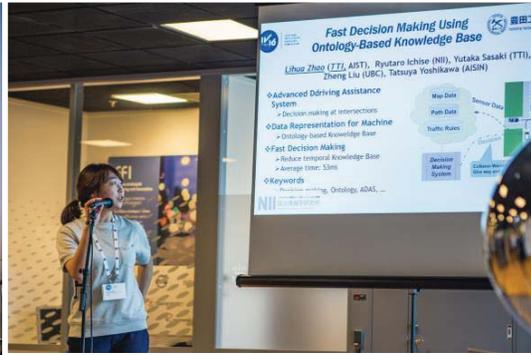
Oral Sessions

Videos of the oral presentations are available on the web, see www.iv2016.org.



Poster Sessions





Attendance

581 delegates from 42 countries were gathered, a record-high number for IV. 13 sponsors and exhibitors added value to the conference and 6 organizations showed technical demonstrations at AstaZero proving ground on the last day of the conference.



Workshops and Tutorials

Following tradition, Sunday the 19th, the day before the conference, there were workshops and tutorials initiated and organized by experts on topics relevant for intelligent vehicles. Detailed information is available at www.iv2016.org. A new IV record with 9 workshops and 1 tutorial was also set on the first day.



Exhibition

The great interaction possibilities at IV is not only in between researchers. There were 13 organizations, companies and research institutes, participating as sponsors and exhibitors (See <http://iv2016.org/sponsorship-exhibition/> for a full list) showing their activities within the field of intelligent vehicles, and interacting with the participants. Many of the exhibitors were from the Gothenburg area or national, showing the local engagement in the development of new transport technology, but there were also several international organizations taking the opportunity to be present and interact with the IV participants.





Technical Demos at AstaZero

The last activity of the symposium was demonstrations at proving ground AstaZero outside of Borås. There, 400 delegates braved inclement weather to witness the demonstration of some awesome active safety and autonomous driving functionality given by Volvo Group AB, Volvo Cars, IAV, Autoliv, Tass International, and Chalmers University.





Social Program

Welcome Reception

The City of Gothenburg invited the delegates to the Welcome reception at Valand, a grandiose house dating from 1886. The house is located in the middle of the city at the parade street Avenyn.

Lord Mayor Lena Malm welcomed everyone to the city of Gothenburg. General Chair prof Jonas Sjöberg, Chalmers, and General Host Anna Nilsson-Ehle, SAFER, greeted everyone and proposed a “skål” for a successful conference.



Conference Banquet

The participants were picked up at the conference centre by tour-guided sightseeing boats known as “Paddan”. During an hour long boat ride, the history of Gothenburg was presented while the participants were had a small snack in the sunshine. At the arrival at the banquet hall, a choir, “Gosskören”, entertained while the boats entered the harbor and the participants embarked.

The Banquet hall, Eriksbergshallen, is a former industrial shipyard mechanical workshop transformed to a flexible event hall. At the arrival, the participants were offered a drink before they were seated. During the three course dinner, the choir entertained during the appetizer, at the end of the main course we had some general information from IEEE ITS society, coming conferences and the ceremony for the awarded papers. During dessert, we had a group, “Jam Ladies”, singing and dancing internationally known Swedish hits. After the banquet the participants could take a boat back immediately, or, as many did, stay and mingled at the bar waiting for the second boat which left 45 minutes later.





Student Activity - Volvo Networking Event

In the evening of the first day of the conference, Volvo Group AB and Volvo Cars hosted a student gathering at the Volvo Museum. In this historical environment the students mingled with engineers working on active safety and autonomous driving giving them the opportunity to meet the people behind the technology of Volvo's intelligent vehicle systems and learn more about Volvo Group and Volvo Cars. How does Volvo work to increase the safety in and around the vehicles? What can be expected of the Volvo's of the future? There were 150 students participating.

Awards

The Best Paper Award Ceremony was held at the banquet. In three categories, Brendan Morris, Program Chair handed out, Best Paper Awards, first and second prize, Best Poster Paper Award, first and second prize, and Best PhD Paper Award, first and second prize.



Best Paper Award – First Prize:

Lukas Schneider, Marius Cordts, Timo Rehfeld, David Pfeiffer, Markus Enzweiler, Uwe Franke, Marc Pollefeys, Stefan Roth
For the paper entitled: *Semantic Stixels: Depth is Not Enough*



Best Paper Award – Second Prize:

Alexander Scheel, Christina Knill, Stephan Reuter, Klaus Dietmayer
For the paper entitled: *Multi-Sensor Multi-Object Tracking of Vehicles using High-Resolution Radars*



Best Poster Paper Award – First Prize:

Georg Schildbach, Matthias Soppert, Francesco Borrelli
For the paper entitled: *A Collision Avoidance System at Intersections using Robust Model Predictive Control*



Best Poster Paper Award – Second Prize:

Peter Ritzer, Christoph Winter, Jonathan Brembeck
For the paper entitled: *Experimental Validation of Geometric Path Following Control with Demand Supervision on an Overactuated Robotic Vehicle*



Best PhD Paper Award – First Prize:

Xiangjun Qian, Arnaud de La Fortelle, Fabien Moutarde
For the paper entitled: *A Hierarchical Model Predictive Control Framework for On-Road Formation Control of Autonomous Vehicles*



Best PhD Paper Award – Second Prize:

Martin Buczko, Volker Willert

For the paper entitled: *How to Distinguish Inliers from Outliers in Visual Odometry for High-Speed Automotive Applications*

Thanks

Planning and preparing a successful conference, like IEEE IV'16 is made up by contributions of many persons around the globe over a long time period. When the conference took place, it was like an explosion where all the energy from all the work was released in many activities during the short time of three days.

With that said, we would like to thank all of you who have contributed; both you who helped during the long planning phase before the conference, and those of you who contributed during the explosive three days in Gothenburg. Most feedback we received has been very positive, and, although we have been working hard, we know that the end result is thanks to engagement from so many passionate and skilled people.

Thanks to all, more than 600, participants contributing to good, interactive discussions at the poster sessions and at the coffee breaks and the lunches.

Thanks to all paper authors, 742 total authors from 29 different countries submitted 412 papers for the initial review. With that, we also thank the 790 reviewers who delivered more than 1000 reviews.

Thanks to the organizing committee, each of you have been responsible for important activities for the symposium. Many of you have also contributed with important advice from earlier conferences.

Thanks to the International Program Committee who handled the review process and all the many reviewers who helped ensure the quality of the proceedings

Thanks to workshop and tutorial organizers, all the authors contributing to the workshops.

Thanks to sponsors and exhibitors. Your contributions added additional values to the conference extending the scientific presentations. Your commitment also demonstrated the atmosphere of cooperation we have in the region.

A great thank you also to the volunteers helping during the conference, and all marvelous staff who solved any problem that arose.

Jonas Sjöberg
Anna Nilsson-Ehle
Brendan Morris

Report on IEEE Summer School on Smart Mobility

<https://sites.google.com/site/smartmobilitysummerschool2016/>

Last July 14-15, 2016, Technically Sponsored by the Spanish Chapter of the IEEE Intelligent Transportation Systems Society (ITSS), and the IEEE ITSS education program, we celebrated the first Summer School on Smart Mobility in Gran Canaria, in the Canary Islands Spain. It was chaired by Leopoldo Acosta Sánchez (ULL), Javier J. Sánchez Medina (ULPGC)

We had a modest participation in numbers (20) but very interesting from the point of view of interactivity and networking. We had participants from Brazil, Turkey, Tunisia, Morocco, France, Germany, Austria, The Netherlands, UK, Portugal and Spain. Students enjoyed very interesting talks, about very diverse and up to date thematics on Intelligent Transportation and Smart Mobility.



Since lunch was included in their registration, they used that time to extend that very interesting discussions.

July, 14. 2016

July, 15. 2016

9-10:00	Summer School Introduction (Leopoldo Acosta Sánchez, Javier Sánchez Medina)	9-10:00	“Perenqué”: Intelligent Wheelchair Demo by GRULL
10:00-11:15	Rosaldo Rossetti. “Smart Cities: issues and opportunities for citizen engagement in mobility”	10:00-11:15	Leopoldo Acosta. “Perenqué – Intelligent Assistive Mobility”
11:15-11:45	Coffee Break	11:15-11:35	Coffee Break
11:45-13:00	Javier Sánchez Medina. “Traffic Simulation with SUMO. Opportunities and Threats of a new urban mobility simulation open paradigm”.	11:35-12:50	Luis Moreira Matias. “Real-Time Mobility Data Mining”.
13:00-14:00	Lunch (Not included, we will provide inexpensive options near the Venue)	12:50-13:00	Miguel Ángel Sotelo. President of the Spanish Chapter of the IEEE ITS Society.
14:00-15:15	Pino Caballero Gil. “Security in Vehicular Ad-Hoc Networks”	13:00-14:00	Lunch
15:15-15:45	Coffee Break	14:00-15:15	Achille Fonzone. “ITS data to understand and influence public transport behaviour”
15:45-17:00	Cristina Olaverri Monreal. “Human Factors and Smart Mobility”	15:15-15:45	Coffee Break
		15:45-17:00	Haneen Farah. “Safer Mobility for All Road Users”



PERENQUÉN

An intelligent **wheelchair demonstration** (*Perenquen* prototype) was carried out by the Group of robotics of University of La Laguna.

We also had the visit of the **IEEE ITS Society’s Spanish Chapter president**, Prof. Miguel Ángel Sotelo, who gave a very interesting talk on the activities this chapter is promoting.

After the summer school, a free water sport activity was also offered to students, where they did big Stand up paddle and kayak in Maspalomas beach.



PROF. MIGUEL ANGEL SOTELO





U.S. Department
of Transportation

**Federal Highway
Administration**

Title: Exploratory Advanced Research Program 2016

Broad Agency Announcement
DTFH6116R00036

FEDERAL HIGHWAY ADMINISTRATION

BROAD AGENCY ANNOUNCEMENT

No. DTFH6116R00036

“EXPLORATORY ADVANCED RESEARCH PROGRAM”

August 26, 2016

I. General Information

Contracting Officer: Robin K. Hobbs, FHWA, (202) 366-4004, Primary
Robin.Hobbs@dot.gov

Technical POC: David Kuehn, FHWA, (202) 493-3414; David.Kuehn@dot.gov

SUMMARY OF IMPORTANT DATES

The Federal Highway Administration anticipates that the proposal, evaluation and award process for this Broad Agency Announcement will proceed generally in accordance with the following schedule:

BAA Opens (FBO publication)	August 26, 2016
Question Period Closes	September 26, 2016
Proposals Due 4:00 pm EST	October 14, 2016

Anticipated Award Date: Beginning March 2017 through September 2017

PROPOSAL SUBMISSION: Electronic transmissions of the proposal shall be sent to FHWAadvancedresearch@dot.gov and to the Contracting Officer, Robin.Hobbs@dot.gov no later than 4:00 p.m., EST, on October 14, 2016. Proposals received after this date and time will not be considered.

The proposal transmission shall be titled in the following sample format:

Topic #, XYZ University – FHWA EAR BAA 2016

FUNDING NOTE: Funding is available in the total amount of \$7M for all awards under this Broad Agency Announcement. FHWA anticipates that five (5) to eight

(8) contracts or cooperative agreements may be awarded across the three topic areas.

II. Overview

INTRODUCTION: Legislation established the Exploratory Advanced Research (EAR) Program that addresses longer-term, higher risk research and strives to develop partnerships with public and private sector entities.

FHWA identifies and scopes topics through extensive initial-stage investigation and engages national and international experts to assure use of the most recent advances in science and engineering. FHWA is moving forward with three topics that have a strong scientific and technical basis and national importance through the issuance of this BAA.

Award Type

The FHWA may award either contracts or assistance agreements as a result of this BAA. In consultation with the technical evaluators, the Contracting Officer (CO) will make the determination whether a contract or assistance agreement will be awarded. Three factors affect the decision to award a procurement contract or assistance award, and if an assistance award, a grant or cooperative agreement. The three factors are:

- Legislative authority
- Principal purpose
- Degree of federal involvement

The authority to enter into assistance agreements for this effort and the costs sharing requirements is found under 23 U.S.C. § 502 - Surface Transportation Research, Development, and Technology, paragraph (b)(3)(C), which states: “The Secretary may carry out research, development, and technology transfer activities related to transportation...by making grants to, or entering into contracts and cooperative agreements.”

Assistance agreements differ from contracts in several key ways:

The primary goal of a procurement contract is to procure goods or services for the use of or to directly benefit the federal awarding agency; the primary goal of an assistance agreement is to further a public purpose.

Procurement contracts allow for the vendor/supplier to make a profit, while assistance agreements are cost-reimbursable agreements in that the only permissible charges are actual costs that are directly related to the project and an amount of indirect costs based on an agreed-upon rate.

Procurement contracts require “deliverables” that the CO/Contracting Officer’s Representative must test and accept; assistance agreements do not include deliverables, but may require other submissions described in the award document.

Although the Government encourages cost sharing for both cooperative agreements and contracts, all applications submitted for cooperative agreement consideration shall include a 20 percent of the total award value or greater non-federal cost share.

PROGRAM SCOPE: This program is intended to spur innovation and focus on higher risk and higher pay-off research. Exploratory Advanced Research bridges basic and applied research. In contrast to basic research, EAR Program funded research projects have a mission-orientation. In contrast to applied research, EAR Program funded research does not pursue a narrowly-defined application or product. Incremental advances and demonstrations or evaluations of existing technologies are not within the scope of this program. In terms of Technology Readiness Levels (TRL), the EAR Program focuses on moving research from TRL 2 or 3 to TRL 5 or 6. More information about Technology Readiness Levels is located at http://www.fhwa.dot.gov/advancedresearch/trl_h.cfm.

Though the overall program scope is intentionally ambitious and broad to address the wide spectrum of topics and objectives that funded investigations will strategically support, this solicitation is intended to address specific technology and knowledge gaps, identified through scanning and convening activities, that will help the FHWA improve highway safety, reduce congestion on the nation's highways, reduce environmental and health impacts of the nation's highways and reduce the long term costs and improve the efficiency of the nation's highways.

OBJECTIVES AND DESCRIPTION: The FHWA is soliciting for proposals under its EAR Program for research projects that could lead to transformational changes and truly revolutionary advances in highway engineering and intermodal surface transportation in the United States. This program shall support scientific investigations and studies to advance the current knowledge and state-of-the-art in the sciences and technologies employed in the planning, design, construction, operation, maintenance and management of the nation's highways. Strategically, this research will enable and expedite the development of revolutionary approaches, methodologies, and breakthroughs required to drive innovation and greatly improve the efficiency of highway transportation.

The research topics described below are intended to guide potential offerors and are based upon the authorizing legislation, stakeholder input, initial stage investigations and the strategic needs of the FHWA. Through scanning and convening activities over the past year, FHWA engaged a large number of stakeholders from within and outside the traditional highway research community to identify topics of research that promise transformation and possible breakthroughs in highway technology, processes and policies. Topics found to have strong merit in advancing different fields including engineering, hard sciences, as well as social sciences to support national strategic objectives are included in this solicitation.

Given the exploratory and high risk focus of this program, FHWA anticipates that the results of these investigations will not be methods or technologies that will be

immediately implementable and will most likely result in highway industry access to new knowledge and concepts that while proven, will require further development before they would be ready for full implementation. FHWA envisions that these results will undergo further development via the other applied research and development programs of the FHWA and others.

In submitting proposals, offerors are reminded that the intent of this program is to fund applied research that, while high risk and perhaps longer term, is undertaken with a specific problem or need in mind. Basic research is not within the scope of this program.

FHWA may make multiple awards for each of the topics described below.

Topic 1: Computation Methods for Analysis of Mobile Device Data

Mobile devices periodically communicate with their respective network providers, the data from which can be used to provide location-based data. Though these data currently are being primarily collected for a wide range of other purposes, they could provide new methods and sources for understand travel behavior and transportation network performance. At the same time the number and variety of mobile devices is increasing. Data from mobile devices, with extensive coverage and very large sample size, offer a significant opportunity to revolutionize highway research topics such as but not limited to travel behavior analysis, traffic operations, and safety analysis.

The EAR Program in coordination with the Office of Highway Information held a Cell Data Symposium in February 2014. A summary report is located at <http://www.fhwa.dot.gov/advancedresearch/pubs/14060/>. The report noted scientific and business challenges to the use of mobile data. This research focuses on the scientific challenges such as data mining, fusion of non-standardized data or simulating data to extend comprehensiveness across geographies and populations groups, packing and delivering potentially proprietary data and information in public domain, and to project future behavior.

The objective of this research is to test new, credible, extensible, and reproducible computational data manipulation methods and to point towards expanding derived data for public data purposes on a sustained basis.

The longer-term impact of this research is increase the efficiency and effectiveness of data collection agencies need to analyze travel behavior and system performance at different spatial and temporal scales. The timeliness of the underlying data will improve, as updated data are readily available. So, too, will the accuracy of analysis, since such “big data” yield a rich picture of travel behavior that accounts for trends not well captured by traditional data collection methods.

Proposals should address how novel computational methods can supplement or replace current methods and the production of data that transportation system owners and

operators need to make decisions with in areas of travel behavior such as origin destination information by time of day and seasonality effects. For example, agencies plan future investments using tabulation of average weekly, monthly, and annual trip rates and origin-destination matrices by census tract, county, PUMA or any combination from the acquired data assigned to modes of transportation (air, rail, fixed-route public transportation, private vehicle, car share, bicycle, or walk). Agencies also assess system performance across social, economic, and demographic stratifications, which may require expanding the non-probability sample of trips provided in the data acquired to represent all person-travel across the system by modes.

Proposals should be aware of and build on recently funded research such as “Advanced Solutions to Capture Mobility Data: CloudThink and Mobility as a Service” with information located at http://www.its.dot.gov/dma/dma_pubs.htm#sthash.Apu8Mbx.d.dpuf and “SmarTrAC: A Smartphone Solution for Context-Aware Travel and Activity Capturing” with information located at http://www.its.dot.gov/dma/dma_pubs.htm#sthash.Apu8Mbx.d.dpuf.

Special Capabilities: FHWA anticipates that the research team may include recognized experts in data analytics, mobile communications, policy development, and in transportation engineering topics such as travel modeling, traffic analysis, or safety.

Topic 2: Behavioral Science and Experimental Economics Approaches for Transportation

Experimental economic studies have provided government an understanding of behavior that provides for new and effective policy approaches, for example, changing consumer savings by moving from 401K “opt. in” to “opt. out” programs or changing nutrition through alternative placement of fruits and vegetables in lunch lines.

Behavioral science and experimental economics have the potential to solve a broad array of transportation related issues as well. FHWA has been involved in transportation related behavioral and experimental economics through research, workshops, and pilots. The EAR Program research project “Behavioral Sciences Approach to Testing, Validating and Establishing Best Practices for Alternative Highway Revenue Collection: Experiments on Driving Under Uncertain Congestion Conditions and the Effects on Traffic Networks from Congestion Pricing Initiatives” examined the degree to which different factors, such as risk attitudes, risk perception, and others, affect route selection behaviors. A fact sheet on the project is located at <http://www.fhwa.dot.gov/advancedresearch/pubs/congestion/index.cfm>. The FHWA Active Transportation and Demand Management (ATDM) Program funded research such as the Congestion and Parking Relief Incentives (CAPRI) project at Stanford University, examining the behavioral potential of providing commuters with games and minimal financial rewards to incentivize off-peak travel, carpooling and transit.

For this topic FHWA is interested in research that could demonstrate the potential for responding to national challenges based on evidence from behavioral economics studies. Below are illustrations and descriptions of three priority challenges. FHWA welcomes proposals that address these issues. FHWA also is interested in other concepts that could result in substantial national improvements in safety, system operations, or environmental behavior.

A. Testing Methods to Reduce Distraction from Hand-Held or Mobile Devices

The tools of behavioral economics and cognitive psychology have recently evolved to answer paradoxes which were not addressed well by the economic model of ‘rational’ actors particularly with respect to understanding the human reaction to risk. Behavioral economics hypothesizes that to navigate the complexity of daily decisions humans routinely utilize simple, efficient rules based on recent information. In transportation, framing examples include an individual’s texting while driving because they successfully completed the “text and drive” task on their last trip.

Several examples from previous behavioral economics research show the potential for this new research to obtain a high payoff in measurably reducing distraction among drivers, train or bus operators, or pedestrians. As an example of behavioral research obtaining a safety behavior goal, researchers at the University of California, Berkeley, showed that the major determinant for pedestrian cross-walk use is seeing others use the cross-walk, as opposed to providing information on the risks of jay-walking.

Proposals responding to this topic could use a behavioral economic framework to discover, test, adapt and develop public policy ‘nudges’ to reduce distracted use of cellular technology. New research could apply behavioral models to explain why mobile devices encourage distraction among drivers, vehicle operators, cyclists, or pedestrians. The research then could provide evidence-based methods for reducing distraction associated with mobile devices and assist policy makers to make deployment decisions concerning, for example, cellular based distracted driving countermeasures.

Researchers should be familiar with and address testing protocols from NHTSA studies of distracted driving. The research should build on NHTSA’s distracted driving research located at <http://www.nhtsa.gov/Research/Crash+Avoidance/Distracted>.

B. Platooning, Cooperative Adaptive Cruise Control or other Connected Vehicle Applications

With the emergence of increased automation and connectivity in vehicles, there are a number of applications system operators and manufacturers are working to improve safety, mobility, reliability, and energy use in transportation. Connected vehicle application laboratory and field experiments often include human factors analysis, understanding, and usability of new systems. An example is located at <http://www.fhwa.dot.gov/advancedresearch/pubs/16044/index.cfm>. These methods, however, provide limited information on scalability, broad acceptance, and possible unintended or misuses that would have system level impacts. The application of

behavioral and economic sciences could provide agencies with fundamental information on behavior for different segments of travelers that could support improved predictive analysis used in investment and operational decisions.

C. Augmenting Predictive Models for Managed Lanes Operations

There is considerable existing empirical engineering research and deployment data on the use of managed lanes. Examples are located at http://ops.fhwa.dot.gov/freewaymgmt/managed_lanes.htm. The application of behavioral and economic sciences could provide agencies with fundamental information on strategic and tactical behavior for different segments of travelers that could support improved predictive analysis used in investment and operational decisions.

Note: FHWA anticipates that the research on this topic would proceed in three phases.

- In the initial phase, researchers would prepare a proof of concept based on limited or scaled down testing and a detailed approach for a large scale experimental design.
- Following review from an expert panel and approval of the full experimental design by the government, the researchers would move to a second phase, conducting the experiments, and preparing reports on the results.
- Following successful completion of the second phase, the researchers in coordination with the government and other stakeholders would develop a detailed transition plan to assist with further development based on the phase two results. This third phase would be optional depending on both the quality and the level of importance to the government in the results.

Note: Testing the behavioral nudge or insight will require access to a pool of participants. Proposals should consider requirements of and access to Institutional Review Boards. Proposals should describe the process for the pool from which they will draw participants and how chosen participants would enhance the behavioral experiment. Proposals also should recognize and account for Office of Management and Budget (OMB) review and clearance of the burden associated with human subject research under the Paperwork Reduction Act (<https://www.opm.gov/about-us/open-government/digital-government-strategy/fitara/paperwork-reduction-act-guide.pdf>).

Special capabilities: FHWA expects that research on this topic will require a strong team experienced with experimental economics (or related fields, such as cognitive psychology) and access to a research facility with a proven track record in the field of behavioral and experimental economics. Researchers are encouraged to partner with State Departments of Transportation or other system owners or operators to enable experiments.

Topic 3: New Methods in Simulation

FHWA has identified advances in simulation from online gaming, military training, and aviation training that could enhance and provide new capabilities for studying human traffic behavior. Advances include methods for federated simulation bringing together different simulators and different types of simulators in a virtual environment. Advances from training applications have the potential to provide new tools for research in safety, operations, travel behavior and other highway transportation areas of study.

Connected simulation could provide new methods for studying interactions between vehicle drivers and between drivers and non-motorized travelers as well as methods for safely assessing the introduction of new connected and automated technologies. This could include but is not limited to examples where an experiment includes

- More than one driving simulator to test the interaction among drivers in a platoon,
- A driving simulator and a simulated pedestrian environment or a driving simulator and a rail simulator to test interaction between different modes of travel,
- A field operational test vehicle and a traffic simulator or hardware simulator to test human-in-the-loop or hardware-in-the-loop concepts and systems, or
- Multiple low-fidelity simulations (for example in an online gaming platform) to research large scale group interactions or test the potential use of software defined environments that provide flexibility and extensibility using existing hardware.

Advances in virtual reality and augmented reality have the potential to supplement traditional technology in high fidelity simulators or field test vehicles enhancing the flexibility and realism of experiments and allowing for experiments of novel connected vehicle or modal concepts and applications. [Advances in virtual reality also have the potential to provide experimenters with new insights from the visualization of and connection across complex computational simulations.](#) [Advances in virtual reality and augmented reality have the potential to make connected simulation more powerful, flexible, and responsive.](#)

Special Note: FHWA anticipates that researchers may want to conduct part of the research taking advantage of expertise, facilities, and equipment located at the Saxton Transportation Operations Laboratory or the Human Factors Laboratory at the Turner Fairbank Highway Research Center in McLean, Virginia. For more information, see <http://www.fhwa.dot.gov/research/tfhrc/labs/operations/> and <http://www.fhwa.dot.gov/research/tfhrc/labs/humanfactors/>. Research Teams may contact

the Federal laboratory manager to discuss possible access to laboratory facilities that could be included in a proposal. Discussions with and inclusion of research conducted at the Saxton Transportation Operations Laboratory or Human Factors Laboratory does not guarantee acceptance of the proposal. Proposals will be reviewed by an independent expert panel. See below for more information about the review criteria. Proposals that include experiments at TFHRC do not need to include FHWA associated costs, which will be funded separately.

Note: Testing the behavioral nudge or insight will require access to a pool of participants. Proposals should consider requirements of and access to Institutional Review Boards. Proposals should describe the process for the pool from which they will draw participants and how chosen participants would enhance the behavioral experiment. Proposals also should recognize and account for Office of Management and Budget (OMB) review and clearance of the burden associated with human subject research under the Paperwork Reduction Act (<https://www.opm.gov/about-us/open-government/digital-government-strategy/fitara/paperwork-reduction-act-guide.pdf>.)

Note: FHWA anticipates that the research on this topic would be phased as follows:

- In the initial phase, researchers would prepare framework and options for a proof of concept design.
- Following review from an expert panel and approval of the framework and proof of concept design by the government, the researchers would move to a second phase, conducting the proof of concept experiments, and preparing reports on the results.

Special capabilities: This research will require a strong team experienced with simulation, networking, and computer science as well as transportation engineering topics such as traffic safety, operations, or travel demand modeling. Candidates are encouraged to partner with asset owners to leverage existing experimental and pilot deployment resources for connected vehicles. For example, more information about Connected Vehicle Pilot Deployments is located at <http://www.its.dot.gov/pilots/index.htm>.

Note: Future Topic Areas

FHWA continues to investigate other research areas for potential breakthrough opportunities. FHWA welcomes questions or thoughts about opportunities and other areas of focus that could lead to transformation changes in highway research. At this time, however, FHWA has not identified other focus areas or topics for funding under the EAR Program. For further information about the EAR Program, please see <http://www.fhwa.dot.gov/advancedresearch/contacts.cfm>.

III. INSTRUCTIONS FOR SUBMISSION OF PROPOSALS:

ADMINISTRATIVE INFORMATION: Offerors are required to follow the guidance contained herein. The following sections provide information on proposal format, the submission process, evaluation and funding processes, and other general information. Proposals not meeting the format described in this BAA will not be reviewed.

All administrative correspondence or questions on this BAA should be directed to the Contracting Officer at the following email address: Robin.Hobbs@dot.gov.

FHWA will provide responses to questions received through the September 26, 2016 cut-off date. FHWA may not respond to questions received after the cut-off date.

IV. EVALUATION CRITERIA: Evaluations will be performed using the following criteria:

- A. Scientific and Technical Merit:** Overall scientific and technical merit of the proposal, including the potential to result in increased understanding/knowledge in the field of highway research. Overall capabilities, including the qualifications, capabilities, and experience of the proposed principal investigator, team leader, and key personnel who are critical in achieving the proposal objective; the offeror's qualifications, capabilities, and experience in related technical areas; and the offeror's facilities and demonstrated ability for achieving the proposal objectives; overall capability to manage the effort, including plans to objectively measure the value and impact of the research and ensure value whether the inquiry leads or does not lead to anticipated results; and the offeror's demonstrated ability to transfer or hand-off results within and across scientific and engineering communities may be considered as part of scientific and technical merit.
- B. Importance to Agency Programs** in providing foundational research that would promote research investment in applying technology, process improvements or policy solutions that could lead to significant innovations in the highway system. Significant partnering is an essential aspect of the EAR program. Within the EAR Program, successful research teams often include entities or researchers who traditionally have not been involved in transportation research partnering with entities or researchers who have. The degree to which the proposal develops partnerships with public and private sector entities may be considered under importance to Agency programs.
- C. Fund Availability:** FHWA will consider the availability of funding for awards selected under the BAA. Cost realism and reasonableness shall also be considered to the extent appropriate.

D. Past Performance: Past performance will be evaluated on a “Pass/Fail” basis for the purposes of making a determination of acceptable or unacceptable risk and responsibility.

E. Small Business Subcontracting Plan: The Small Business Subcontracting Plan (required by all Offerors who are other than small business entities) will be evaluated on a “Pass/Fail” basis.

NOTE: The Small Business Subcontracting Plan is required for other than small businesses with proposals over \$700,000 only.

The number of awards, and their dollar value, will vary depending on the merit of proposals received.

V. GENERAL INFORMATION REGARDING THE PROPOSAL PROCESS

Proposals will be evaluated by FHWA against the evaluation criteria outlined above. The FHWA may make more than one award or no award for each of the topics listed in the BAA.

Offerors may submit more than one proposal; however each one must be in response to a single topic on the BAA. The topic of the proposal must be clearly identified in the proposal title on the cover page.

It will be of added value for the proposing organization's management to demonstrate flexibility in support of this approach. Examples of support are strong internal backing with matching funds, innovative approaches in contracting and leveraging current and past technology development efforts that support this program.

Awards under this program may be subject to the requirements of Section 508 of the Rehabilitation Act, depending on the type of final products or reports to be delivered under each award. The Act requires that all electronic products prepared for the Federal Government be accessible to persons with disabilities, including those with vision, hearing, cognitive, and mobility impairments. Proposers can view [Section 508 of the Rehabilitation Act \(http://www.access-board.gov/508.htm\)](http://www.access-board.gov/508.htm) and the [Federal IT Accessibility Initiative \(Home Page\) \(http://section508.gov/\)](http://section508.gov/) for detailed information.

The Paperwork Reduction Act of 1995 (PRA): Offerors are advised that any activities involving information collection (i.e., surveys, questionnaires, etc.) from 10 or more non-Federal entities, including States, are subject to PRA requirements and may require the FHWA to coordinate an OMB Information Collection Clearance, a process that generally takes six months or more.

VI. PROPOSAL FORMAT AND CONTENT

Format

All proposals should be submitted in Microsoft® Word 2010 (compatible) or text searchable Adobe® Portable Document Format (PDF). Pricing data shall be submitted in Microsoft Excel 2010 (compatible).

The format of the proposal volumes discussed below shall be as follows:

- (a) Proposals shall be prepared on 8½ x 11 inch paper.
- (b) A page is defined as one side of an 8 ½ by 11 inch sheet of paper. Therefore, a sheet with printing on both sides is considered two pages.
- (c) Text shall be printed using a Times New Roman or Arial font, size no less than 12 point font.
- (d) Page margins (exclusive of headers and footers) shall be a minimum of 1 inch top, bottom and each side. Columns shall not be used as they are difficult to read electronically.
- (e) Footnotes, legends, or labels associated with tables or diagrams, and other information that is ancillary to the main text, may be presented in a font size smaller than 12 point font---provided that any such smaller font is fully legible.

Proposals shall consist of two separate volumes:

Volume I – Technical Proposal and Management Approach
Volume II – Cost Proposal and Business Information

Each Volume shall be titled according to the sample format below:

Topic #, XYZ University – FHWA EAR BAA 2016 – VOLUME I
Topic #, XYZ University – FHWA EAR BAA 2016 – VOLUME II

The proposals shall be prepared in the following format: 8.5 x 11 inches, one and one-half line spacing or double spaced, in at least 12-point type.

Volume I

Volume I must be no longer than 30 pages in length. The contents of any appendices shall count against the 30-page limit and shall be limited to figures that directly support items discussed in the text of the proposal. If items are included in an appendix, which is not explicitly discussed, in the basic proposal, the proposal may not be reviewed. Proposals with Volume I in excess of 30 pages may not be reviewed. Proposals with less than the maximum number of allowed pages will not be penalized. Offerors are encouraged to submit concise, but descriptive, proposals.

Volume I of the proposal shall include the following sections, each starting on a new page (an estimated page breakdown is included):

(a) *Cover Page*: This must include (1) the BAA number, (2) proposal title, (3) project duration, (4) type of business (large business, small disadvantaged business, other small business, HBCU or MI, other educational, or other nonprofit), (5) complete list of subcontractors, (6) technical and administrative points of contact including addresses, telephone numbers, electronic mail addresses, and facsimile machine numbers and (7) a project abstract of no more than 200 words. The cover page does not count against the page limit for Volume I.

(b) *Executive Summary*: The summary (approximately 4 pages) should include:

(1) a description of the proposed visionary technology or system and how the proposed effort will meet the objectives of the BAA,

(2) a description of the significant innovative ideas proposed for the nation's intermodal transportation systems,

(3) a comparison of these innovative ideas with current approaches and the current state of the art,

(4) the expected impact of the research if successful including the contribution and relevance of this proposed effort to related FHWA and highway programs,

(5) a brief description of the technical approach and the key technology and system development milestones for proof of concept

(6) the process and metrics recommended for measuring the impact of the developed technologies and system, and

(7) a summary of the anticipated program deliverables.

(c) *Innovative Claims (optional)*: Provide a summary of significant innovative technical claims (approximately 2 pages). Identify any innovative technologies and technical ideas to be pursued and the expected impact on the state of the art if the proposed efforts are successful.

(d) *Statement of Work (SOW)*: This section (approximately 6 pages) must detail the relevant background information, the objective(s) of the proposed effort, the overall planned scope of the effort, and the technical approach for accomplishing the proposed effort. A chart of the proposed Work Breakdown Schedule (WBS) must be provided to describe both the high level tasks and the subtasks at a level of detail sufficient to ensure that individual subtasks are clearly identified and allocated to a single project group or functional group within the proposing organization or to a single clearly identified

subcontractor. For each task and subtask, provide a description of the proposed effort, significant timing constraints associated with the specific task and subtask to be performed (such as, "this task y can only be initiated after successful completion of task x"), the anticipated duration in both calendar time (weeks) and in resource time (person-hours and person-weeks), the planned specific utilization of personnel from specific project groups, functional groups and subcontractors, and also the anticipated results, products, or deliverables associated with the completion of each tasks and subtasks.

(e) *Schedule, Milestones, and Evaluation Metrics*: This section must provide a summary (approximately 3 pages) of the schedule, milestones, and associated evaluation metrics for the proposed effort. A Plan of Action and Milestones (POA&M) format will be utilized in which the technical tasks and subtasks from the SOW, described in section (d) above, will be listed along the vertical axis of the schedule chart and time, with planned program phases (in 12 month increments), calendar year and fiscal year identified along the horizontal axis of the schedule chart. All significant experiments, simulations, lab demonstrations and field demonstrations to be performed should be identified. Each milestone on the chart(s) will be numbered. There will be a separate table listing each of these milestones, the planned date of completion, the planned evaluation metrics, and the criteria for successful completion of the milestone. This table must be specific, with both goal and specific quantified performance criteria (or range of anticipated performance) described for each planned milestone.

This section must also provide a summary description of any Measures of Effectiveness expressions planned to be utilized in this development effort. A descriptor of the proposed approach to designing experiments, simulations and demonstrations to ensure consistent and effective software/system development and associated test planning should be provided if appropriate. Techniques or methodologies to facilitate repeatable, risk mitigation experimentation in all phases of the proposed development effort should be described.

This section also must describe the two or three most challenging technical areas and activities related to the proposed research or technology development and indicate approaches for mitigating technical and schedule risk should proposed technologies produce weaker than anticipated results. This section also may describe any parallel or alternative development approaches or technologies, and the rationale for their use. Please indicate the potential impact of these alternatives on the performance goals and objectives described for the topic in the BAA

(f) *Deliverables and Products*: This section (approximately 2 pages) must consist of two subsections: Deliverables and Products. The deliverables subsection must describe and enumerate the anticipated deliverables for the proposed effort, both preliminary and final. The products subsection must describe and enumerate any additional anticipated results or products, including transferable technology expected for users on this program or for developers or users on related programs. This section should address specific innovative approaches the offeror will take to facilitate technology transition. This subsection should contain a clear description of how results will be made sharable to other funded highway

research programs and what use these results might be to these other activities. Any restrictions on software, other data, or hardware developed under proposals that would affect this practice should be clearly identified in this section. The government expects to obtain no less than Government Purpose License Rights to all software delivered as a part of these funded efforts. All software deliveries, preliminary and final, will include as a minimum, well-documented source code in electronic readable format, overall software architecture documentation, overall and individual module interface documentation, and a users' operations manual. All hardware deliveries will include all documentation necessary to reproduce (assemble) and operate the delivered hardware system(s).

Note: FHWA seeks research that encourages continued research and development by providing reasonable and broad access to products such as models, algorithms, software, or data.

(g) *Proprietary Claims:* This section (approximately 1 page) must provide a summary of any proprietary claims to results, software, hardware, prototypes, or systems supporting and/or necessary for the use of the research, results, software, hardware, prototype, or system proposed for development under this BAA. Any claims made in other parts of the proposal, such as in sections (c) and (f) above, which would impact the claims in this section must be identified in a cross-reference table in this section. As mentioned in section (f) above, the government expects to obtain no less than Government Purpose License Rights to all software delivered as a part of these funded efforts. If there are no proprietary claims this section shall consist of a statement to that effect.

Note: Exploratory advanced research can lead to unexpected inventions and processes. Accordingly, FHWA may ask for disclosure of inventions and new processes that result from Program awards in order to discuss and advise the research team on how the results could continue through the research and development process and be taken up by the highway transportation industry or by other industries.

(h) *Management Plan:* This section (approximately 2 pages) must describe the overall approach to management of this effort, including a brief discussion of the proposed organization and the use of personnel and other resources. Provide a description of how the proposed effort, as described in the Work Breakdown Structure (WBS), will be executed. Refer to significant tasks and subtasks identified in the SOW (section (d) above) and to the Schedule, Milestones, and Evaluation Metrics (section (e) above) and provide a rationale for allocation of resources to proposed project groups, functional groups, and subcontractors. Indicate planned government research and facility interfaces, and planning, scheduling and control practices. This section should also describe the partnership structure between the entity proposing work and other public and private sector entities funding or otherwise substantially participating in the work, including State Departments of Transportation, Metropolitan Planning Organizations, Universities, Foundations, etc.

Note: The Management Plan and Technology Transfer plan (section (i), next) should provide discussion on how FHWA will know the work is successful. Project evaluations

will be conducted at key mid-point milestones or at completion to document accomplishments.

(i) *Technology Transition Plan:* The technology transition plan (approximately 2 pages) should describe the plans and capabilities to accomplish technology transition. It should describe the anticipated stage of development of the technology at the completion of the proposed effort, describing how the research is anticipated to result in an increased understanding/expansion of the knowledge base for the topic, and the anticipated overall approach to advancing the technology further, either through further applied research, commercialization other mechanisms.

The transition plan should include a discussion of long-term use of and access to data or software developed as part of the research and approaches for exploiting the use of intellectual property developed through licensing or other means.

Note: For Proposals that result in awards, FHWA intends the transition plan to be a living document during the conduct of research.

(j) *Facilities:* This section should include a description (approximately 2 pages) of the facilities that would be used for the proposed effort.

(k) *Experience:* This section should include a description (approximately 2 pages) of relevant capabilities, work, and significant accomplishments in areas associated with proposed research area or in closely related areas. Associate the described relevant experience to the specific project group or functional group in the proposing organization or to the specific proposed subcontractor(s).

(l) *Key Personnel:* This section should include a list of key personnel (approximately 1 page), with title and identification of association to a specific project or functional group within the proposing organization or to a specific proposed subcontractor. Indicate the proposed amount of effort (person-hours) to be expended by each person during the proposed program (by both calendar year and by fiscal year). Resumes shall be provided for all key personnel. Resumes shall not exceed one page, and are not included in the total page limitation for this part of the proposal.

(m) *Qualifications:* This section should include a concise summary of the relevant qualifications of all key personnel proposed along with other major sources of support for them (limited to no more than one page per key person). If necessary, the government will request additional resume and qualification related information. **Note: This section is not included in the page limit.**

(n) *Other Proposals:* This section must include a summary list of all current and pending proposals (approximately 2 pages) being executed or proposed to be executed with the support of personnel proposed in this effort. This list should be ordered by the size of the effort and should include start and end dates, total project cost, and the average amount of time (person-hours per month) planned or currently being expended on each effort. The

list should be organized by names of the key personnel and other significant senior personnel. If the summary list is greater than 2 pages long, indicate at the bottom of the second page the number of additional current and pending proposals and the total project cost associated with these remaining efforts. If required, a request for the complete list will be made.

(o) *Bibliography*: This section should include a bibliography (approximately 1 page) of relevant technical papers and research notes which support the technical concepts and innovative ideas described in this proposal.

Volume II

Volume II of the proposal shall be limited to a maximum of 12 pages not including the Cover Page. If necessary, the government will request additional cost back-up information, as appropriate. Offerors may propose using any of the pricing methods (Cost Reimbursable or Time & Materials) outlined below

All offerors shall include in the proposal the following mandatory business information regarding your business or institution:

- a. Business Size
- b. Federal Tax Identification Number (TIN)
- c. Dun & Bradstreet Number
- d. Name and contact information (mail address, telephone, and email address) of your authorized business representative/point of contact

Volume II – Business and Cost/Price (Parts I-VI) consist of the following:

- Part A – Cost/Price Information
- Part B – Other Financial/Organizational Information
- Part C – Subcontracting Plan (not included for assistance agreement)
- Part D – Past Performance – Not to exceed four pages.

A. Cost/Price Information

Volume II information shall include annual and total costs with a baseline period of performance up to 12 months, and if needed, with one or more options, each no longer than 12 months.

A.1 Funding

The total amount of federal funding (federal share) that is available for awards under this BAA is \$7 million.

IMPORTANT: For procurement contract awards, offerors shall propose using one of the pricing structures in the directions below. Please note that for cost type contracts, offerors must have an acceptable accounting system for cost type Government contracts. Offerors without an approved accounting system should consider submitting a Time and Material cost proposal.

B.1 Cost Reimbursable Proposal

A detailed cost break-down showing costs by each major cost category, including (as applicable) direct labor, fringe benefits, subcontract costs, other direct costs (travel, equipment, etc.), and indirect costs for the initial phase of the proposed effort.

Provide a *separate* and fully detailed cost breakdown for *each* optional future phase proposed.

NOTE: Some application areas anticipate successful results in an initial phase before moving into one or more subsequent phases. In these cases, proposals shall include a fully detailed cost breakdown for the initial phase. Where the approach of subsequent phases is dependent on the work of the initial phase, proposers should use their best judgment regarding the levels of direct and indirect costs and categories of personnel.

The FHWA anticipates that proposals funded would have an approximate award date beginning in March 2017 through September 2017.

The cost detail shall include:

Direct Labor:

- Personnel by name or labor category
- Number of hours proposed (commercial organizations) or percent of effort (organizations subject to OMB Circulars)
- Hourly unburdened labor rate (commercial organizations) or salary rate and basis (9- or 12-month basis) (organizations subject to OMB Circulars)
- Fringe Benefits Rates applied
- Profit/Fee percentage and amount

Other Direct Costs. Other Direct Costs shall be supported by explanation of estimating factors and other relevant supporting details. For example, travel costs shall be supported by detail on the estimated trips, number of travelers, and associated costs for airfare, per diem, other transportation, etc. A similar level of detail shall be provided for any meeting costs, equipment, duplication/printing charges, and other direct costs.

Indirect Costs. Discuss your proposed rates for all years. Identify the various specific indirect rates and what they are based on (e.g., labor overhead based on

direct labor dollars) and how they are applied/calculated. State any differing rate applications (for example if there is a different proposed rate when applied to travel or material purchases than when applied to subcontractor costs). Offerors must provide dollar values as well as percentages.

Subcontractor costs should be fully detailed, and the information used by the proposer to analyze the price of the subcontract shall be provided. An SF1411 is not required for this submission of your proposal.

Details of any cost sharing to be undertaken by the offeror shall also be included in the cost section. Describe the type of funds (cash, in-kind, etc.) and its contribution and relationship in enhancing the proposed effort.

Volume II must also include a separate breakdown of costs by major task area. Use the same task or subtask numbers as described in the SOW submitted as part of your Technical proposal in Volume I.

If necessary, the government will request additional cost back-up information, as appropriate.

B.2 Time & Material Proposal

Provide a *separate* and fully detailed cost breakdown for *each* optional future phase proposed.

NOTE: Some application areas anticipate successful results in an initial phase before moving into one or more subsequent phases. In these cases, proposals shall include a fully detailed cost breakdown for the initial phase. Where the approach of subsequent phases is dependent on the work of the initial phase, proposers should use their best judgment regarding the levels of direct and indirect costs and categories of personnel.

The price proposal detail shall include:

- Labor categories, their descriptions, and fully burdened hourly rates.
- Number of hours proposed, by task and labor category, and hourly rate.
- Travel and Other Direct Costs assumptions.
- Sum total of all labor, travel, and other direct costs
 - A detailed cost break-down showing costs by each major cost category, including (as applicable) other direct costs (travel, equipment, etc.),

For all cost/price proposals, offerors shall submit, under a separate tab, all (if any) assumptions or conditions upon which the cost/price proposal is based. Note that assumptions or conditions that are non-conforming to the Government terms and conditions may result in a higher cost risk assessment.

Any information submitted must support the cost/price proposed. Include sufficient detail or cross-references to clearly establish the relationship of the information provided to the cost/price proposed. Support any information provided by explanations or supporting rationale as needed to permit the Government to evaluate the documentation. Such information is not considered cost or pricing data, and will not require certification in accordance with FAR 15.403.

B.3 Other Financial / Organizational Information:

Provide the following information:

- (1) Standard Form LLL - Submit a completed Standard Form LLL, Disclosure of Lobbying Activities, included as Exhibit 5.
- (2) Terminated Contracts - List any contract that was terminated for convenience of the Government within the past 3 years, and any contract that was terminated for default within the past 5 years. Briefly explain the circumstances in each instance.
- (3) A completed copy of Section K in this RFP, if the offeror is not registered and completed their representations and certifications in the System for Award Management.
- (4) Conflicts of Interest - The Offerors shall provide a brief statement in its proposal that describes in a concise manner all past, present or planned organizational, contractual or other interest(s), which may affect the Offerors' ability to perform the proposed contract in an impartial and objective manner. The Contracting Officer will review the statement and may require additional relevant information from the Offerors. In accordance with FAR Subpart 9.5, all such information, and any other relevant information known to DOT, will be used to determine whether an award to the Offerors may create an actual or potential conflict of interest. If any such conflict of interest is found to exist, the Contracting Officer may (a) disqualify the Offerors, or (b) determine that it is otherwise in the best interest of the United States to contract with the Offerors and include appropriate provisions to mitigate or avoid such conflict in the contract awarded.
- (5) The offeror must state that they agree to all terms and conditions of the model contract of this solicitation, which consists of the RFP Sections A through J, including all documents, exhibits, and all other attachments that are incorporated therein by reference and made a part thereof, or provide an explanation for any exceptions.
- (6) The original proposal must be signed by an official authorized to bind

your organization and must stipulate that it is predicated upon all the terms and conditions of this RFP. Your proposal shall be submitted in the number of copies, to the address and marked as indicated in I.H above. Proposals shall be reproduced on letter-sized paper, and legible in all required copies.

(7) If subcontractors and/or individual consultants will be used in carrying out the requirements of this project, the following minimum information concerning the subcontractor shall be furnished:

- (a) Name and address of the subcontractor or consultant.

C - Subcontracting Plan

Subcontracting Plan:

Proposals submitted for CONTRACT award consideration from other than small businesses and that exceed \$700,000 in total value must include a Small Business Subcontracting Plan in accordance with the Federal Acquisition Regulation Part 19.7. The Subcontracting Plan does not count against the page limit for Volume II.

Each prime offeror who is other than a small business shall include within its proposal a complete copy of the prime offeror's Master Subcontracting Plan, satisfactorily addressing all of the administrative requirements set forth in FAR section 52.219-9.

The offeror shall also submit a subcontracting plan in accordance with the instructions/format Exhibit 6 to this BAA. In the event that the Offeror has no such plan, the form shall be submitted with "no plan identified" indicated on the form as applicable and the offeror shall submit a statement of circumstances supporting that determination.

D - Past Performance

The offeror shall submit in its proposal past performance references for no more than two relevant contracts or subcontracts performed by the offeror, its predecessor companies, its key personnel who have relevant experience, or its performance as a subcontractor performing major or critical aspects of the requirement, relevant contracts/subcontractors are those similar in nature to the requirements of the solicitation and performed within the last three years. Each past performance reference shall not exceed two pages for a total maximum page count of four pages. Each past performance reference must contain contact information (name, agency or business, title, telephone number, and email address) for the CO and COR if a federal contract or subcontract, or equivalent positions if non-federal, as well as the contract number with agency or business name, total potential value, value of work completed, description of the work performed by the offeror, and the period of performance. Each reference must indicate clearly whether the work was performed by the offeror as a prime or a subcontractor, by a predecessor company, or by key personnel.

F - Special Instructions for Assistance Agreement Applicants

IMPORTANT NOTE: The FHWA may award either contracts or assistance agreements as a result of this BAA. Due to the requirements of Public Law 114-94, Section 6002(a), the FHWA requires a cost share of at least 20 percent from non-federal sources of funding.

In addition to the information above, proposals eligible for cooperative agreement awards shall also complete and submit the following forms (available at www.grants.gov or <http://grants.nih.gov/grants/funding/424/index.htm>).

Volume 2 – Budget Application as described below - no page limit

OPTIONAL: An Applicant may include, at their option, to facilitate displaying the organization of their application, a one-page cover page, and a second page to include both a Table of Contents and/or a Listing of Tables/Figures. These pages are for orienting evaluators to the contents of the application package and will not be evaluated and are not included in the Volume I page limitation.

a. **Part I - APPLICATION FORMS**

1. SF424

Note: Applicants may leave fields 5a, 5b, 6, 7, and 13 blank on the form.

2. SF424A

Note: Section A:

- Block 1(a): Print opportunity title listed on page 1;
- Block 1(b): Print CFDA number on page 1;
- Block 1(c): Print Total Federal Funds Requested in dollars; and,
- Block 1(d): Print Total Cost Share in dollars, and leave columns (e), (f), and (g) and rows 2, 3, and 4 blank.

3. SF424B

4. SFLLL

Note: The form must be completed and submitted even if no lobbying to report. If no lobbying to report insert none or N/A in the relevant blocks.

b. **Part II – COST INFORMATION AND OTHER FINANCIAL INFORMATION**

Provide a separate detailed budget plan for each year and summarize the information for all years for all activities. Spreadsheets can be formatted similarly to the format in DOT Form 4220.44, located at: http://www.fhwa.dot.gov/aaa/pdfs/frm4220_44.pdf.

The detailed budget plan must include each of the following items/sub-items:

1. Detailed excel (or compatible) workbook containing spreadsheets/tabs (formatted to be printed out) and supporting information clearly delineating and supporting all estimated costs: with columns for Federal Share, Cost Share (if applicable) and Total Costs (per year and in summary form) as follows:
 - a. Labor Rates- Direct labor-by-labor categories to include hours, rates and escalation. Anticipated promotions for any personnel must be included with the escalation calculation. The annual direct labor escalations rate and its basis should be clearly stated with the proposal. Discuss your proposed rate as compared to historical experience and include when and how escalation will be calculated/implemented.
 - b. Indirect Rates- Discuss your proposed rates for all years. Identify all the various specific indirect rates including what they are (pool and base), and what they are based on (e.g.; labor overhead based on direct labor dollars) and how they are applied/calculated. Provide dollar values as well as percentages. Please also provide any audit information to support these rates (for example, a copy of signed Department of Health of Human Services rate agreement).

Note: Per 2 CFR 200.414(f), Indirect (F&A) Costs, an Applicant may elect to propose a de minimis indirect rate of 10% of modified total direct costs.

- c. Other Direct Costs- Applicants must provide a breakout and justification of Other Direct Costs by Category (travel, equipment, etc.)
- d. If subcontractors/sub-recipients (lower-tiered organizations and/or individual consultants) will be used in carrying out this project, the following minimum information concerning such, must be furnished:
 - i. Name and address of the organization or consultant.
 - ii. Description of the portion of work to be conducted by the organization or consultant.
 - iii. Cost details for that portion of work.
 - iv. Applicant's cost/price analysis of each sub-recipient/contractor(s) showing how their price is fair and reasonable (this includes any sub-recipient/contractor(s) that will be included in the Federal share or the non-Federal share); and

- v. Letter of commitment from each sub-recipient/contractor(s) (this includes any sub-recipient/contractor(s) that will be included in the Federal share, the non-Federal share or in a non-paid (volunteer) capacity).
 - e. Provide detail and support for cost share as part of overall project budget.
 - f. Clearly delineate cost share match versus Federal share.
2. Identify any exceptions to the anticipated award terms and conditions as contained in Section F, Federal Award Administration Information. Identify any preexisting intellectual property that you anticipate using during award performance, and your position on its data rights during and after the award period of performance.
3. The use of a Dun and Bradstreet (D&B) Data Universal Numbering System (DUNS) number is required on all applications for Federal grants or cooperative agreements. Please provide your organization's DUNS number in your budget application.
4. A statement to indicate whether your organization has previously completed an A-133 Single Audit and, if so, the date that the last A-133 Single Audit was completed.
5. A statement regarding Conflicts of Interest. The Applicant must disclose in writing any actual or potential personal or organizational conflict of interest in its application that describes in a concise manner all past, present or planned organizational, contractual or other interest(s), which may affect the Applicants' ability to perform the proposed contract in an impartial and objective manner. Actual or potential conflicts of interest may include but are not limited to any past, present or planned contractual, financial, or other relationships, obligations, commitments or responsibilities, which may bias the Applicant or affect the Applicant's ability to perform the agreement in an impartial and objective manner. The AO will review the statement(s) and may require additional relevant information from the Applicant. All such information, and any other relevant information known to DOT, will be used to determine whether an award to the Applicant may create an actual or potential conflict of interest. If any such conflict of interest is found to exist, the AO may (a) disqualify the Applicant, or (b) determine that it is otherwise in the best interest of the United States to contract with the Applicant and include appropriate provisions to mitigate or avoid such conflict in the agreement pursuant to 2 CFR 200.112.
6. A statement to indicate whether a Federal or State organization has

audited or reviewed the Applicant's accounting system, purchasing system, and/or property control system. If such systems have been reviewed, provide summary information of the audit/review results to include as applicable summary letter or agreement, date of audit/review, Federal or State point of contact for such review.

Terminated Contracts - List any contract/agreement that was terminated for convenience of the Government within the past 3 years, and any contract/agreement that was terminated for default within the past 5 years. Briefly explain the circumstances in each instance.

8. Describe how your organization will obtain the necessary resources to fund and fulfill the proposed cost share, as applicable.
9. The Applicant is directed to review Title 2 CFR §170 (http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&tpl=/ecfrbrowse/Title02/2cfr170_main_02.tpl) dated September 14, 2010, and Appendix A thereto, and acknowledge in its application that it understands the requirement, has the necessary processes and systems in place, and is prepared to fully comply with the reporting described in the term if it receives funding resulting from this Notice. The text of Appendix A will be incorporated in the award document as a General Term and Condition as referenced under this Notice's Section F, Federal Award Administration Information.
10. Disclose any violations of Federal criminal law involving fraud, bribery, or gratuity violations. Failure to make required disclosures can result in any of the remedies described in 2 CFR 200.338 entitled Remedies for Noncompliance, including suspension or debarment. (See also 2 CFR Part 180 and 31 U.S.C. 3321).
11. If a nonprofit or not-for-profit status, please provide evidence of this status preferably from the Internal Revenue Service

VII. OTHER ADMINISTRATIVE INFORMATION: It is the policy of the FHWA to treat all proposals as competitive information and to disclose the contents only for the purposes of evaluation. The Government may use selected support contractor personnel as special resources to assist in administering the evaluation of the proposals. These persons are restricted by their contracts from disclosing the proposal information or using it for other than performing the administrative task. Contractor personnel are required to sign non-disclosure statements. By submission of your proposal, you agree that your proposal information may be disclosed to those selected contractors for the limited purpose stated above.

This announcement constitutes the Broad Agency Announcement as contemplated by FAR 6.102(d)(2). A formal Request for Proposals or other solicitation regarding this announcement will not be issued. Requests for same will be disregarded.

The Government reserves the right to select for award any, all, part, or none of the proposals received in response to this announcement. In addition, the Government reserves the right to award either contracts, grants, or other instruments determined to be of benefit to the government in achieving the goals of this program.

This BAA is an expression of interest only and does not commit the Government to pay any proposal preparation costs. All responsible sources capable of satisfying the Government's needs may submit proposals, which will be evaluated. Historically Black Colleges and Universities (HBCU) and Minority Institutions (MI) are encouraged to submit proposals and join others in submitting proposals. However, no portion of this BAA will be set aside for HBCU and MI participation due to the desire to solicit ideas as broadly as possible.

LIST OF DOCUMENT, EXHIBITS, AND OTHER ATTACHMENTS

1. **STANDARD FORM LLL, DISCLOSURE OF LOBBYING ACTIVITIES**
(also available at <https://www.whitehouse.gov/sites/default/files/omb/grants/sfillin.pdf>)
2. **FORMAT FOR SMALL BUSINESS SUBCONTRACTING PLAN**

MECHATRONICS

The Department of Mechanical and Mechatronics Engineering, in the Faculty of Engineering at the University of Waterloo, invites applications from highly qualified candidates for a tenure-track position in Mechatronics Engineering, with a particular focus on Intelligent Vehicles or Additive Manufacturing. Candidates will be considered at all levels, though preference will be given to individuals applying at the Assistant and/or Associate Professor levels.

The successful candidate will hold a PhD in Mechatronics or Mechanical Engineering or a similar discipline. Duties will include developing and maintaining an active and internationally recognized research program, teaching at the undergraduate and graduate levels, and advising graduate and undergraduate students. Applicants should have demonstrated research strength in Intelligent Vehicles or Additive Manufacturing, and have a commitment to establishing a multi-disciplinary collaborative program. Applicants must have excellent communication skills and a dedication to both teaching and research.

Applicants should send their full curriculum vitae, a concise research and teaching vision statement, and the names of three references to:

Dr. Jan Huissoon
Chair, Department of Mechanical and Mechatronics Engineering
University of Waterloo
Waterloo, Ontario, Canada N2L 3G1
Email: mmechair@uwaterloo.ca

Applications will be accepted until October 31, 2016, with an anticipated start date of May 1, 2017. The successful applicant is expected to have an engineering license for practice in Canada or to apply for an engineering license with Professional Engineers Ontario within five years of joining the University. The salary range for this position is \$100,000 to \$150,000 CAD. Negotiations beyond this salary range will be considered for exceptionally qualified candidates. Information about the Faculty, Department and Research Group can be found at www.eng.uwaterloo.ca, www.mme.uwaterloo.ca and <https://uwaterloo.ca/mechanical-mechatronics-engineering/research/automation-and-controls-research>.

The University of Waterloo respects, appreciates and encourages diversity. We welcome applications from all qualified individuals including women, members of visible minorities, aboriginal peoples and persons with disabilities. All qualified candidates are encouraged to apply; however, Canadian citizens and permanent residents will be given priority.

“Three reasons to apply: <http://uwaterloo.ca/fauw/why>.”



**Redondo Beach, California , USA
June 11-14, 2017**

More information - <http://iv2017.usc.edu>

Call for Papers



The IEEE Intelligent Vehicle Symposium (IV) is one of the major annual conferences of the IEEE Intelligent Transportation Systems Society. IV 2017 will be held in Redondo Beach, California, USA at the Crown Plaza Hotel right across the street from the Redondo Beach Marina and Pier with the blue Pacific Ocean a block away. In this beautiful setting, IV 2017 welcomes articles in the field of Intelligent Vehicles dealing with new developments in theory and applications, vehicle technologies and demonstrations. It also welcomes proposals for workshops and tutorial sessions to be offered the day before the symposium starts namely June 11, 2017. The traditional format of IV which makes it unique involves a single oral paper presentation session with subsequent parallel poster sessions where each poster paper is orally presented in a brief single slide in order to attract attention and motivate informal discussions. All accepted papers will be included in the proceedings. The technical areas include but are not limited to the following:

- Connected and probe Vehicles
- Automated Vehicles with and without pilot/driver
- Partial Vehicle Automation
- Vehicle-to-Vehicle and Vehicle-to-Infrastructure communications
- Driver monitoring
- Driver Human factors and Personalization
- Electric Vehicles
- Hybrid Vehicles
- Vehicle dynamics and control
- Lane change and merging
- Commercial Vehicles
- Vehicle Emissions and environmental impacts
- Sensing, detection, and actuation
- Advanced vehicle safety systems
- Driver and traveler support systems
- Vision and environment perception
- Vehicle localization and autonomous navigation
- Cognition and Control
- Legal Issues

In the tradition of successful IEEE ITS Conferences, only the highest quality papers will be accepted through an on-line peer review process. The final version of the accepted papers will be included in the Conference proceedings only after at least one author officially registers and presents the paper at the Conference.

Important Dates

- Full-paper submission deadline: January 16, 2017
- **Workshop/Tutorial deadline: December 22, 2016 No extension will be granted**
- Notification of acceptance: February 28, 2017
- Final paper submission deadline: March 31, 2017

Special Issue of *IEEE Transactions on Intelligent Vehicles*

High quality papers will be recommended for consideration in the new *IEEE Transactions on Intelligent Vehicles*. Authors will be asked to revise their papers according to the standards of the Transactions, which will be subjected to the Transactions' review process.

SOLI 2017 Call for Papers

2017 IEEE International Conference on Service Operations
and Logistics, and Informatics
September 18-20, 2017, Bari, Italy

Sponsor: IEEE Intelligent Transportation System Society

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IMPORTANT DATES

Special session proposals deadline:
December 15, 2016

Paper submission deadline:
January 15, 2017

Notification of acceptance:
April 30, 2017

Camera-ready copy due:
June 30, 2017

SOLI 2017 is strongly supported by the TC on Automation in logistics of the IEEE RAS and the TC on Discrete Event Systems of the IEEE SMCS



Conference Theme: Optimization and Control Approaches in Transportation and Logistic Systems

The 2017 IEEE International Conference on Service Operations and Logistics, and Informatics will be held on September 18-20, 2017, in Bari, Italy. This conference will provide a remarkable opportunity for the academic and industrial communities in the areas of Service Operations, Logistics, and Informatics, to address new challenges and share solutions, and discuss future research directions. The specific objectives of the modern Logistics and Transportation Challenges are 'smart, green and integrated services' to achieve planning, scheduling and transport systems that are resource-efficient, climate- and environmentally-friendly, safe and seamless for the benefit of citizens, economy and society. Moreover, the increasing complexity of logistic systems and the rapid advancements of Information and Communication Technologies require the development of innovative models, control and optimization approaches and lead to the definition of novel problems with respect to the related literature.

Proposals for special sessions and workshops are welcome, in particular regarding the innovation and research results in the framework of international and European projects.

Technical topics of the conference include but are not limited to:

- Performance evaluation of new hardware and software technologies to support smart logistics systems
- Planning, scheduling and coordination problems arising from the implementation of new hardware, software or data architectures
- Impact of novel automation, information and data architectures on the design of logistics systems and supply chains
- Innovative interfacing of hardware, software and data resources to support smart logistics
- Intelligent transportation and distribution systems: theory and application
- Automatic and intelligent control applications in logistics systems at the factory, warehouse, transportation or supply chain levels
- Supply chains
- System-level approaches to cooperative logistics
- Management information systems in logistics
- Normative, legal, security and privacy issues in logistics and their impact on logistics system design and control
- Intra-factory logistics and material handling for manufacturing and production systems
- Warehouses, distribution centres, and transport terminals
- Freight transportation systems (seaports, railroads, trucking systems, package express)
- Port of the future
- Smart logistics for smart cities
- Logistics for Healthcare Systems
- Internet of Things applications in logistics and intelligent transportation systems
- Physical Internet for logistics and intelligent transportation systems

PAPER SUBMISSION

Complete manuscripts must be electronically submitted through the conference website <http://dei.poliba.it/soli2017>. Submitted manuscripts should be within six (6) pages in IEEE two-column format, including figures, tables, and references. Please use the templates at [Manuscript Templates for IEEE Conference Proceedings](#) from the conference website to prepare your paper.

Call for Papers

IEEE Transactions on Intelligent Vehicles



The *IEEE Transactions on Intelligent Vehicles* (T-IV) publishes peer-reviewed articles that provide innovative research concepts and application results, report significant theoretical findings and application case studies, and raises awareness of pressing research and application challenges in the areas of intelligent vehicles, and in particular in automated vehicles.

The IEEE Transactions on Intelligent Vehicles will commence publication in 2016, with 4 issues annually.

Prospective authors are invited to submit original contributions or survey papers for review for publication in T-IV. Topics of interest include (but are not limited to):

- Advanced Driver Assistance Systems
- Automated Vehicles
- Active and Passive Vehicle Safety
- Vehicle Environment Perception
- Driver State and Intent Recognition
- Eco-driving and Energy-efficient Vehicles
- Cooperative Vehicle Systems
- Collision Avoidance
- Pedestrian Protection
- Proximity Detection Technology
- Assistive Mobility Systems
- Proximity Awareness Technology
- Autonomous / Intelligent Robotic Vehicles
- IV related Image, Radar, Lidar Signal Processing
- Information Fusion
- Vehicle Control
- Human Factors and Human Machine Interaction
- IV technologies in Electric and Hybrid Vehicles
- Novel Interfaces and Displays
- Intelligent Vehicle Software Security

All manuscripts must be submitted through Manuscript Central at

<http://mc.manuscriptcentral.com/t-iv>

Refer to <http://its.ieee.org/2014/10/06/submitting-a-paper/> for general information about electronic submission through Manuscript Central.

Editor-in-Chief: Prof. Ümit Özgüner, The Ohio State University, Department of ECE and Center for Automotive Research (CAR), Columbus, Ohio USA. (ozguner.1@osu.edu)



IEEE Intelligent Transportation Systems Magazine Special Issue on 'High Performance Computing in Simulation and Optimization of Dynamic Transportation Networks'

Description: When it comes down to Real Time traffic management, we need accurate simulations that can give us a sharp image of what is going on in the streets and what is going to be in future. However, accuracy brings along heavier algorithms, a higher performance demand from the hardware to be used. Luckily, the current technological progressions on electronics and computer science possess a great potential to extend the application of computing methodologies in research and industry. Building a powerful parallel computer is not an expensive or extremely complex goal anymore. The increasing power of computers has advanced the modeling, simulation, and optimization of complex systems such as dynamic transportation networks. This gave rise not only to the incorporation of various existing theories and methods to network problems, but also to the robust simulation of interactive user-network behavior for real time solutions. Considering the need for the efficient modeling and simulation of vehicular network traffic within temporal domain with reasonable computation load, this special issue solicits novel contributions and breaking results on all aspects of high performance computing applications in network traffic simulation.

In connection with the activities of the 19th EURO Working Group on Transportation Meeting (EWGT2016), we seek submissions from participants to the special session on 'High Performance Computing in Simulation and Optimization of Dynamic Transportation Networks' at EWGT2016. Since we aim to provide a collage of high-quality papers presenting crucial aspects of dynamic network simulation and optimization including both established and state-of-the-art solutions in this field and also showcase emerging innovative ideas and technologies this special issue is open to the entire international research community in interest. Papers suitable for this issue should focus on topics including (but not limited to):

- High performance computing in modeling and optimization of dynamic network traffic;
- Network traffic state estimation and prediction;
- Emerging data technologies to support dynamic network management applications;
- Large-scale urban traffic control;
- Combined network traffic control and dynamic network management; and
- Relevant case studies and applications.

Guest Editors:

Hilmi Berk Celikoglu
Technical University of Istanbul, Turkey
celikoglu@itu.edu.tr

Javier J. Sánchez-Medina
Universidad de Las Palmas de Gran Canaria, Spain
javier.sanchez.medina@ieee.org

The intended timeline for the overall publication process of the special issue is:

Submission deadline of full papers: ~~November 15~~ **December 30, 2016**
Feedback from first-round reviews: February 15, 2017
Revised manuscripts due: April 01, 2017
Final manuscripts due: May 15, 2017
Publication: Fall 2017

Submission via Manuscriptcentral

All papers should be submitted at the '[IEEE Transactions on Intelligent Transportation Systems and Intelligent Transportation Systems Magazine](https://mc.manuscriptcentral.com/itsm)' manuscriptcentral via '<https://mc.manuscriptcentral.com/itsm>'. While submitting a paper to the special issue, please choose the article type 'Magazine Special Issue - EWGT2016: Simulation and Optimization of Dynamic Network Traffic' otherwise your submission will be handled as a regular manuscript. All submissions will go through the journal's standard peer review process. Criteria for acceptance include originality, contribution, and scientific merit. For author guidelines, please see the IEEE Tools for Authors at 'http://www.ieee.org/publications_standards/publications/authors/authors_journals.html'.

All inquiries regarding this call for papers should be directed to Guest Editors listed above or to the Editor-in-Chief, Dr. Miguel Ángel Sotelo at 'miguel.sotelo@uah.es'.

Call for Papers for Special Issue at IEEE ITS Magazine

Special Issue on “Modeling & Simulation of Application Scenarios for Autonomous Vehicles”

Guest Editors:

Dr. Ansar Yasar, Transportation Research Institute (IMOB), Hasselt University, Belgium, ansar.yasar@uhasselt.be

Dr. Elhadi Shakshuki, Jodrey School of Computer Science, Acadia University, Wolfville, Canada, elhadi.shakshuki@gmail.com

Dr. Javier Jesus Sanchez Medina, Innovation Center for the Information Society (CICEI) University of Las Palmas de Gran Canaria, Spain, javier.sanchez.medina@ieee.org

Aim and Scope:

This special issues provides a multidisciplinary collaborative forum for researchers and practitioners to submit papers presenting new research results and novel ideas related to the **theory or the practice of agent-based traffic and transportation modeling for autonomous vehicles**.

This special issue will be based on 05 selected papers from *Modeling & Simulation in Transportation Science track* at the 8th International Conference on Ambient Systems, Networks and Technologies (ANT-2017). Only the best accepted papers will be invited to extend their work by at least 40% for this special issue.

Topics of interest include (but are not limited to):

- Environment modeling and interaction protocols to enable V2X communication
- Collaboration, cooperation, competition, coalitions in traffic and transportation models for autonomous vehicles
- Social and emergent behavior in MAS-T (multi-agent systems applied to traffic and transport)
- Multi-modal routing of autonomous vehicles in a dynamic traffic environment

Important Dates (Tentative):

Paper submission deadline	Aug 15, 2017
Author notification	Oct 15, 2017
Revised manuscript submission deadline	Nov 15, 2017
Final decision notification	Dec 15, 2017
Final paper submission deadline	Jan 15, 2018

Workshop: Intelligent Transportation Systems and Smart Mobility

Call for Extended Abstracts for Workshop at EUROCAST2017 (<http://eurocast2017.fulp.ulpgc.es>)
co-chairs: Javier J. Sanchez-Medina (ULPGC), Hilmi Berk Celikoglu (Tech. Uni. of Istanbul), Cristina Olaverri-Monreal (Uni. of Applied Sciences Technikum Wien), Fernando Garcia-Fernandez (Carlos III Uni. of Madrid), Leopoldo Acosta-Sanchez (University of La Laguna).

	<p>Important Dates:</p> <ul style="list-style-type: none">- Extended Abstract Submissions Deadline (2 pages, Springer LNCS format): October 31, 2016.- Conference/Workshop Dates: February 19-24, 2017 (During local Carnival celebrations) <p>An extended two pages abstract, including references in English with indication of the workshop of the intended contribution must be sent by e-mail to eurocast@iuctc.ulpgc.es.</p> <p>LNCS Format instructions here: http://goo.gl/WmqKoS</p>
<p>Venue: Museo Elder de la Ciencia. Las Palmas de Gran Canaria, Canary Islands, Spain</p>	

We live in an era of major societal and technological changes. Recent demographic trends generate new challenges for cities making an efficient and sustainable management of services and resources more than ever necessary. Cities must transform and become "Smart Cities" to cope with these challenges. According to ^[1], a city may be called 'smart' "when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory government". A Smart City is a city's response to that challenges raised by technological evolution and namely ICT development and penetration. Scattered sensors and technological devices do not make a city smart - rather, it is the city's structure, dynamics, and the implications of the technology on improvement in the wealth and quality of life of its citizens ^[2].

A central element that requires consideration is **mobility**. Many scientific and political fora have called for a brand new way of thinking about mobility, based on four important pillars. **Safety, Environmental sustainability, Social equity** and **Economic sustainability** are the driving forces of the change we will see for good in the next decades.

The concept of 'Smart Mobility' is an essential part of the 'Smart City' paradigm, that has so far been understood as a fusion of Information and Communication Technologies (ICT) with Transportation. However, this is only a simplistic notion of what 'Smart Mobility' really needs to be. In this workshop we will extend that vision and explore from traffic modelling and management to transportation electrification, human factors and autonomous driving, in a holistic and human centred approach. To do so we will work to have contributions from reputed scientists coming from all of the aspects of the proposed theme.

This Workshop was meant as a continuation and renewal of two past traditional EUROCAST Workshops, namely "Traffic Behaviour, Modelling and Optimization" and "Mobile and Autonomous Transportation Systems".

Authors will be notified of acceptance by December 1, 2016. Accepted Extended Abstracts will be published in a pre-Conference volume with ISBN. It is anticipated that the final selected full papers will be published in line with prior Eurocast meetings (Springer Lecture Notes in Computer Sciences). Selected full final papers for publication will be required before April 30, 2017.

Further information can be requested here: javier.sanchez.medina@ieee.org



[1] Schaffers, H., Komninos, N., Pallot, M., Trousse, B., Nilsson, M., & Oliveira, A. (2011). Smart Cities and the Future Internet: Towards Cooperation Frameworks for Open Innovation. Future internet assembly, 6656(31), 431-446.

[2] Komninos, N. (2008). Intelligent cities and globalisation of innovation networks. Routledge.



The 8th International Conference on Ambient Systems, Networks and Technologies

<http://cs-conferences.acadiau.ca/ant-17/>



May 16-19, 2017, Madeira, Portugal

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Lo'ai Tawalbeh, Saudi Arabia
Yves Vanrompay, Belgium

The 8th International Conference on Ambient Systems, Networks and Technologies (ANT-2017) is a leading international conference for researchers and industry practitioners to share their new ideas, original research results and practical development experiences from all Ambient Systems, Networks and Technologies related areas. The ANT program will include guest speakers, peer reviewed technical program, demos, short papers, posters and invited sessions on the same or related topics, industrial presentations, and exhibitions around but not limited to the following topics:



- Agent Systems, Intelligent Computing and Applications
- Big Data and Analytics
- Cloud Computing
- Context-awareness and Multimodal Interfaces
- Emerging Networking, Tracking & Sensing Technologies
- Internet of Things (IoT)
- Mobile Networks, Protocols and Applications
- Modeling and Simulation in Transportation Sciences
- Multimedia and Social Computing
- Service Oriented Computing for Systems & Applications
- Smart Cities and Climate Change Management
- Smart Environments and Applications
- Real-time Big Data Stream Mining Architecture
- Systems Security and Privacy
- Systems Software Engineering
- Vehicular Networks and Applications
- General: Distributed systems, networks & applications



Submission of Papers

Original, unpublished papers are solicited for presentation at the conference. Prospective authors are invited to submit papers (electronically, PDF Word format only) with no longer than 8 pages for full papers including all figures and references, and must be formatted according to the conference guidelines that can be found at:

<http://cs-conferences.acadiau.ca/ant-17/#paperSubmissions>

Submitted papers will follow peer-review procedures, and accepted papers will be scheduled for oral presentations. Selected papers will be invited for publication, in the special issues of:

- Journal of Ambient Intelligence and Humanized Computing (IF: 0.835), by Springer
- Journal of Future Generation Computer Systems (IF: 2.430), by Elsevier
- IEEE Intelligent Transportation Systems Magazine (IF: 1.547), by IEEE
- Journal of Personal and Ubiquitous Computing (IF: 1.498), by Springer

At least one author of each accepted paper is required to register and attend the conference to present the work.

Venue

The conference will be held at *Gale Santa Cruz hotel* is 2 minutes walk from the beach. Overlooking the Atlantic Ocean in a tranquil area of Madeira, Vila Galé offers deluxe accommodation with a wellness centre. It features an infinity pool, beauty treatments and nearby golf facilities. Shuttle buses run daily to nearby Funchal city center. Madeira International Airport and Pico do Cruz Mountain are both within a 5-minute drive from Santa Cruz Vila Galé.

Deadlines

Workshop Proposal: **November 1, 2016**
Paper Submission: **December 22, 2016**
Acceptance Notification: **February 13, 2017**
Final Manuscript Due: **March 13, 2017**

Accident Analysis & Prevention Special Issue on "Simulation of Traffic Safety in the Era of Advances in Technologies"

Scope: The rapid advancement in vehicle technologies and vehicle automation introduces new challenges into our road traffic system and raises questions regarding the interactions of humans with these technologies and the implications on traffic safety. Side by side, the advancement in technologies for innovative data collection and the increase in computing capabilities provide unprecedented opportunities to investigate those questions comprehensively. Today, more than ever the need to close the gap between human factors conceptual models and traffic engineering models is becoming a necessity to understand the new interactions and phenomena introduced by vehicle technologies and vehicle automation. This understanding will increase the validity of the developed models to simulate individual road user behavior and assess the collective impact on traffic safety. Considering the need for an efficient modeling and simulation, this special issue solicits novel contributions and breaking results on all aspects of theoretical and applied studies in simulation of traffic safety.

We aim to provide a collage of high-quality papers presenting crucial aspects of traffic safety simulation, including both established and state-of-the-art solutions in this field, and showcase emerging innovative ideas and technologies. Originated within the activities of the *19th EURO Working Group on Transportation (EWGT2016) Meeting* held at the Technical University of Istanbul, this special issue is open to the entire international research community without the necessity of conference participation. Papers suitable for this issue should focus on topics including, but not limited to:

- Incorporating human factors in road user behavioral modelling
- Methodological advancement in microscopic simulation modelling
- Development and use of surrogate measures for safety assessments
- Advances in using virtual environments, augmented reality and oculus rift for safety
- Simulating the impact of vehicle automation on safety
- Field studies on the impact of advanced driving assistance systems on safety
- Simulating safety of vulnerable road users
- Safety impacts of future traffic control technologies
- The use of advanced technologies in innovative safety data collection

Guest Editors (in alphabetical order)

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Key Dates

The intended timeline for the overall publication process of this special issue is:

Special issue article type becomes available in EES: June 01, 2016

Submission deadline of full papers: January 15, 2017

Feedback from first-round reviews: April 15, 2017

Feedback from second-round reviews: July 15, 2017

Revised manuscripts due: August 15, 2017

Final manuscripts due: September 30, 2017

Publication: End of 2017

Submission via EES

All papers should be submitted via [Accident Analysis & Prevention online submission system](#). While submitting a paper to the special issue, please choose the article type "Traffic Safety Simulation" otherwise your submission will be handled as a regular manuscript. All submissions will go through the journal's standard peer review process. Criteria for acceptance include originality, contribution, and scientific merit. For author guidelines, please visit the website of the journal at '<http://www.journals.elsevier.com/accident-analysis-and-prevention/>'.

Transportation Research Part C: Emerging Technologies Special Issue on "Advances in Simulation and Optimization of Dynamic Network Traffic"

Scope

The current technological progressions on electronics and computer science possess a great potential to extend the application of computing methodologies in research and industry. The increasing computing capabilities and data availability have advanced the modeling, simulation, and optimization of complex systems such as dynamic transportation networks. This gives rise not only to the incorporation of various existing and emerging theories and methods into network problems, but also to the robust simulation of cooperative and interactive user-network behavior for real-time solutions. Considering the need for the efficient modeling, simulation and optimization of dynamic network traffic with reasonable computation load, this special issue solicits novel contributions and breaking results on all aspects of theoretical and applied studies in network traffic simulation and optimization.

We aim to provide a collage of high-quality papers presenting crucial aspects of dynamic network simulation and optimization, including both established and state-of-the-art solutions in this field, and showcase emerging innovative ideas and technologies. This special issue is open to the entire international research community. Papers suitable for this issue should focus on topics including:

- High performance computing in modeling and optimization of dynamic network traffic;
- Robust estimation and prediction of network traffic state;
- Dynamic traffic assignment enabled by real-time data;
- Emerging data technologies to support dynamic network traffic management applications;
- Large-scale on-line traffic control;
- Distributed adaptive control for dynamic traffic networks;
- Combined network traffic control and dynamic network management; and
- Relevant case studies and applications.

Guest Editors (in alphabetical order)

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Key Dates

The intended timeline for the overall publication process of this special issue is:

Special issue article type becomes available in EES: June 15, 2016

Submission deadline of full papers: January 15, 2017

Feedback from first-round reviews: April 15, 2017

Feedback from second-round reviews: July 15, 2017

Revised manuscripts due: August 15, 2017

Final manuscripts due: September 30, 2017

Publication: End of 2017

Submission via EES

All papers should be submitted via the [Transportation Research Part C online submission system](#). While submitting a paper to the special issue, please choose the article type 'VSI: Dynamic Network' otherwise your submission will be handled as a regular manuscript. All submissions will go through the journal's standard peer review process. Criteria for acceptance include originality, contribution, and scientific merit. For author guidelines, please visit the website of the journal at '<http://ees.elsevier.com/trc>'.

All inquiries regarding this call for papers should be directed to Guest Editors listed above or to the Editor-in-Chief, Dr. Yafeng Yin at 'yafeng@ce.ufl.edu'.

Conference Calendar

By Haluk Eren, PhD. Firat University, Turkey.

This section lists upcoming ITS-related conferences, workshops, or exhibits. Contributions are welcome; please send announcements to <http://goo.gl/forms/xpgl8WLt9F>



Haluk Eren

IEEE Intelligent Transportation Systems Society's Sponsored Conferences

2016 IEEE Intelligent Vehicles Symposium (IV'16)

Gothenburg, Sweden

<http://www.iv2016.org>

2017 IEEE Intelligent Vehicles Symposium (IV'17) will be held on June 11-14, 2017.

The 12th IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications (MESA 2016)

Auckland, New Zealand

<http://www.mesa2016.org>

Submission due for the next event: To be determined

IEEE 19th International Conference on Intelligent Transportation Systems (ITSC 2016)

November 01-04, 2016

Rio de Janeiro, Brazil

<https://web.fe.up.pt/~ieeetsc2016/>

20th International IEEE Conference on Intelligent Transportation Systems (ITSC 2017) will be in Yokohama.

IEEE International Conference on Vehicular Electronics and Safety (ICVES'16)

Beijing, China

<http://www.ieeeves.org>

Submission due for the next event: To be determined

IEEE International Conference on Service Operations and Logistics, and Informatics (SOLI'16)

Beijing, China

<http://www.ieeesoli.org>

Submission due for the next event: To be determined

2016 IEEE Forum on Integrated and Sustainable Transportation Systems (FISTS 2016)

Beijing, Chine

<http://www.ieeefists.org/>

Submission due for the next event: To be determined

The 3rd International Conference on Universal Village (UV 2016)

October 6-8, 2016

Nagoya, Japan

<http://www.universal-village.org/>

Submission due for the next event: To be determined

The 5th IEEE International Conference on Advanced Logistics and Transport (IEEE ICALT'2016)

Kraków, Poland

<http://www.icalt.org/2016/>

Submission due for the next event: To be determined

The 2016 IEEE International Conference on Intelligent Rail Transportation (IEEE ICIRT 2016)

Birmingham, UK

<http://www.ieee-icirt.com/>

Submission due for the next event: To be determined

Other Conferences

2016 SAE Battelle CyberAuto Challenge

Warren, Michigan, USA

<http://www.sae.org/events/cyberauto/>

Submission due for the next event: To be determined

The 22nd International Symposium on Transportation and Traffic Theory (ISTTT22)

Northwestern University, Evanston, Illinois, USA

<http://sites.northwestern.edu/isttt/>

Submission due for the next event: To be determined

NRITS National Rural ITS Conference

October 02-05, 2016

Chattanooga, TN, USA

<http://www.nationalruralitsconference.org/>

IEEE Vehicular Technology Conference: VTC2017-Spring

June 4-7, 2017

Sydney, Australia

<http://ieeevt.org/vtc2017spring/>

IEEE Multi-Conference on Systems and Control (MSC 2016)

Buenos Aires, Argentina

<http://www.msc2016.org/>

Submission due for the next event: To be determined

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2016)

October 9-14, 2016

Daejeon, Korea

<http://www.iros2016.org>

23rd ITS World Congress

October 10-14, 2016

Melbourne, Australia

<http://www.itsworldcongress2016.com>

Seminars and Dagstuhl Perspectives Workshops 2016

Schloss Dagstuhl, Germany

http://www.dagstuhl.de/en/program/calendar/?dag_type=12&dag_year=2016

VISIGRAPP 2017: 12th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications

February 27 - March 01, 2017

Porto, Portugal

<http://www.visigrapp.org>

Submission due by: October 06, 2016

The 5th Int. Conference on Connected Vehicles & Expo (ICCVE 2016)

Seattle, WA, USA

<http://www.iccve.org/>

Submission due for the next event: To be determined

Intertraffic Amsterdam 2018

March 20-23, 2018

Amsterdam, Netherlands

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

SAE 2017 World Congress & Exhibition

April 04-06, 2017

Detroit, Michigan, USA

<https://www.sae.org/congress/>

International Conference on Vehicle Technology and Intelligent Systems

April 22-24, 2017

Porto, Portugal

<http://www.vehits.org>

Submission due by: November 23, 2016

IEEE International Conference on Robotics and Automation (ICRA 2017)

May 29-June 03, 2017

Singapore

<http://icra2017.org>

Forthcoming papers on IEEE Transactions on ITS

[A Bi-level Feature Extraction-based Text Mining for Fault Diagnosis of Railway Systems](#)

MENGCHU ZHOU, MENGCHU; WANG, FENG; XU, TIANHUA; TANG, TAO; WANG, HAIFENG

[Energy Management System for an Electric Vehicle with rental Range Extender: a least costly approach](#)

GUANETTI, JACOPO; FORMENTIN, SIMONE; SAVARESI, SERGIO

[A Super-Twisting-Like Algorithm and Its Application to Train Operation Control with Optimal Utilization of Adhesion Force](#)

DONG, HAIRONG; YAO CHEN, XUBIN SUN, JINHU LU, LIANG GUO

[Scenario-based Modeling of the On-board of a Satellite-based Train Control System with Coloured Petri Nets](#)

WU, DAOHUA; SCHNIEDER, ECKEHARD

[Mathematical Modeling of the Effects of Speech Warnings Characteristics on Human Performance and Its Application in Transportation Cyber-Physical Systems](#)

WU, CHANGXU; YIQI ZHANG, JINGYAN WAN

[Lossless compression of public transit schedules](#)

WANDEL, SEBASTIAN; XIAOQIAN SUN, YANBO ZHU

[Real-time Rear-End Collision Warning System Using Multi-Layer Perceptron Neural Network](#)

YEO, HWASOO; LEE, DONGHOUN

[Real-time Charging Station Recommendation System for Electric-Vehicle Tax- is](#)

TIAN, CHEN; TIAN, ZHIYONG; JUNG, TAEHO; ZHANG, FAN; WANG, YI; TU, LAI; XU, CHENGZHONG; LI, XIANGYANG

[A Strong Tracking Square Root Central Difference FastSLAM for Unmanned Intelligent Vehicle with Adaptive Partial Systematic Resampling](#)

LIU, DAN; DUAN, JIANMIN; SHI, HUI

[Bayesian Traffic Light Parameter Tracking Based on Semi Hidden Markov Models](#)

OZATAY, ENGIN; OZGUNER, UMIT; FILEV, DIMITAR; MICHELINI, JOHN

Dual-objective Scheduling of Rescue Vehicles to Distinguish Forest Fires via Differential Evolution and Particle Swarm Optimization Combined Algorithm

ZHOU, MENGCHU; TIAN, GUAGNDONG; REN, YAPING

Generating Petri Net-based Behavioral Models from Textual Use Cases and Application in Railway Networks

ZHOU, MENGCHU; DING, ZUOHUA; JIANG, MINGYUE

A Strong Tracking Square Root Central Difference FastSLAM for Unmanned Intelligent Vehicle with Adaptive Partial Systematic Resampling

LIU, DAN; DUAN, JIANMIN; SHI, HUI

Public Vehicles for Future Urban Transportation

ZHU, MING; LIU, XIAO-YANG; TANG, FEILONG; QIU, MEIKANG; SHEN, RUIMIN; SHU, WENNIE; WU, MIN-YOU

Cognitive Chaotic UWB-MIMO Detect-Avoid Radar for Autonomous UAV Navigation

NIJSURE, YOGESH; KADDOUM, GEORGES; KHADDAJ MALLAT, NAZIH; GAGNON, GHYSLAIN; GAGNON, FRANCOIS

Novel Ant Colony Optimization Methods for Simplifying Solution Construction in Vehicle Routing Problems

CHOI, TSAN-MING; WANG, XINYU; LIU, HAIKUO; YUE, XIAOHANG

Likelihood-field-model-based Dynamic Vehicle Detection and Tracking for Self-driving

DAI, BIN; CHEN, TONGTONG; WANG, RUILI; LIU, DAXUE; SONG, JINZE

An Artificial Intelligence-based Approach for Simulating Pedestrian Movement

MA, YI; LEE, E. W. M.; YUEN, R. K. K.

Generating Believable Mixed Traffic Animation

LIN, WEN-CHIEH; WONG, SAI-KEUNG; LI, CHENG-HSING; TSENG, RICHARD

Improved Rule Installation for Real-time Query Service in Software-Defined Internet of Vehicles

ZHOU, MENGCHU; WANG, XIN; WANG, CHENG; ZHANG, JUNQI; JIANG, CHANGJUN

An IMU-Driven Rider-on-Saddle Detection System for Electric Power Assisted Bicycles

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