Call for Special Session Proposals
26th IEEE International Conference on Intelligent Transportation Systems

The 26th edition of the IEEE International Conference on Intelligent Transportation Systems (ITSC 2023) is the annual flagship conference sponsored by the IEEE Intelligent Transportation Systems Society (ITSS). This event hosts an attractive agenda of technical contributions, keynote presentations, tutorials, special sessions, and workshops on topics related to the field of Intelligent Transportation Systems (ITS). The conference aims to gather researchers and practitioners working in this field towards sharing, discussing, and opening new paths in the theory, analysis, simulation, data-based modeling, experimentation, deployment, and case studies embracing transportation and mobility at their core. In particular, ITSC 2023 builds upon its motto to invite and encourage prospective authors to present results, findings, perspectives, and developments related to the implementation and deployment of ITS applications that consider human interaction at the core of their design.

ITSC 2023 solicits proposals for half-day and full-day special sessions covering topics that are relevant to the field of intelligent transportation systems and its applications. Interested organizers are invited to submit their special session proposals in the topic areas listed in the Call for Papers of the conference (https://2023.ieee-itsc.org/call-for-paper/call-for-papers/).

The special session proposal should include title, scope, organizers, topics of interest, list of potential contributors, intended audience, expected attendance and material needed for the special session. The proposal must be submitted electronically by following the instructions available in the conference website (https://2023.ieee-itsc.org/). The deadline is February 15th, 2023.

Disclaimer 1: any special session proposal that is incomplete and/or is not submitted by following this form will not be evaluated for its inclusion in the program of the conference.

Disclaimer 2: the minimum number of contributions in a special session is 5 (half-day proposal) and 10 (full-day proposal). Special sessions that receive less than these thresholds will not be allocated as such in the in the program of the conference.

Further enquiries can be forwarded to: contact@2023.ieee-itsc.org
Title:
Verification and Validation of Autonomous Driving functions, and Key Enabling technologies.

Modality:
- Half-day (e.g., 3 hours plus breaks)

Scope (no longer than 4 pages), including the following sections:
- Motivation and general scope
- Relevance to the ITS community
- Topics of interest for the special session

Autonomous driving functions are rapidly evolving in the last years, fueled by progress in key enabling technologies, such as accurate positioning, advanced environment perception, vehicular communications, and cybersecurity. However, the automotive industry faces a major challenge in ensuring the safety and reliability of the developed functions. The automotive industry is governed by strict test and validation rules, which require a thorough evaluation of all possible situations that an automated function will face in the real world. Testing all possible scenarios is unfeasible and unaffordable. Consequently, verification and validation (V&V) procedures and methodologies remain a key unresolved challenge for the validation of highly automated driving functions. The impact of rapid advances in Artificial Intelligence (AI) in the last years also raises a question about how to include them in a V&V procedure. New methodologies are required to improve their predictability and transparency to ensure their trustiness in a safety-critical field such as driving. Appropriate V&V procedures are required to put the latest autonomous driving functions into practice.

Virtual or hybrid simulation environments, testing, data production and management, adoption of standards, and the use of Machine Learning and AI have some of the key roles in the current paradigm shift of autonomous driving functions validation.

This special session aims to collect the latest advances in V&V methods for autonomous driving functions, best practices for the design of advanced functions, and key enabling technologies.

The topics in the special session would include but are not limited to:
- ITS field tests and implementation
- Verification and Validation procedures for autonomous driving functions
- Simulation environments
- Scenario-based testing
- Data-driven development and validation
- Data and metadata generation for validation
- Standardization of data and interfaces for validation
- Test coverage & Operational Design Domain analysis
- Vehicle localization and navigation
- Vision and environment perception
- V2X communications in ITS
- Connected and automated vehicles
- Security and safety systems

Organizers (names, affiliations, emails, and short bio):
- Joshué Pérez (joshue.perez@tecnalia.com, Tecnalia):
  Joshué Pérez Rastelli (male) is Research leader on Connected and Automated Driving team at Tecnalia Research and Innovation, since 2015. He received the B.E. degree in electronic engineering from the Simon Bolívar University, Venezuela, in 2007. His M.E. degree and his Ph.D. degree from the University Complutense of Madrid were achieved in 2009 and 2012, respectively. He has more than 15 years of experience in the Intelligent Transportation System field, and more than 180 publications related to Automated Driving and ADAS.

- Peio Onaindia (ponaindia@ikerlan.es, Ikerlan):
  Peio Onaindia (male) has a Master in Software for Embedded Systems from TU Kaiserslautern, (Kaiserslautern, Germany, 2017) and is an Eng. in Telecommunications from MU (Mondragon, Spain, 2009). He works as a researcher at IKERLAN in Reliable Embedded Systems department since 2010, where he is in charge of developing several reliable and real-time embedded systems for different transport sectors. He is now the Team Leader of the Real-Time Systems Research Group (2018–). He coordinates R&D activities on reliable embedded systems and takes part in national and European projects like SAFEPOWER, UP2DATE, METASAT or SAFEXPLAIN. His areas of interest are in the field of safety, model-based design, artificial intelligence, robotics, and high-performance platforms.

- Oihana Otaegui (ootaegui@vicomtech.org, Vicomtech):
  Oihana Otaegui (female) is in charge of the Transport & Security Division of Vicomtech. She received her MEng degree in Electronic Engineering and her doctoral degree on Acquisition and Tracking for Satellite Navigation from the University of Navarre, Spain. She has a substantial experience in satellite navigation and transport fields especially in signal processing techniques and algorithms. She has participated in several EU and ESA Projects. Before joining Vicomtech in 2007, she worked as a Researcher at CEIT (Spain) and at Fraunhofer IIS (Germany) on, amongst others, fast acquisition algorithms for Galileo/GPS/EGNOS. She has several publications in the areas of satellite-based localization, LBS and Computer Vision.

List of potential contributors (including as much detail as possible):
The organizers of the special session work in different research institutions that have a wide network of contacts and an important activity in digital media. In addition, we plan to do a wide publicity campaign of the special session. Consequently, we expect to attract international researchers with potential contributions in the proposed topics. We foresee researchers and practitioners working on the automotive field in the different key enabling technologies. The call for papers will also be distributed through several dissemination channels covering ITS, CCAM and AI communities, such as CCAM-Partnership (Vicomtech is co-leading Cluster 5), BDVA (Vicomtech is co-leading the Automotive group), ERTICO (Vicomtech is member of ERTICO and part of the Strategic Committee) and ASAM (Vicomtech is ASAM member).

- **Intended audience and expected attendance of the special session:**

  The verification and validation of autonomous driving functions, as well as the key enabling technologies, are a major challenge for the current advances in autonomous driving. Therefore, we expect a high number of paper proposals of authors willing to share their latest works, findings, and developments. Our target audience are researchers and practitioners working on the automotive field in the different key enabling technologies, as well as in their V&V procedures.

- **Materials and equipment needed for the special session:**

  We do not expect to require any special equipment, rather than a laptop and a projector.

- **Contact details of the proposers (email, postal address, etc):**

  - Joshué Pérez:
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