Smart Systems for Clean, Safe and Shared Road Vehicles

11-12 September 2018, Kaiserin Friedrich House, Berlin, Germany

CALL FOR PAPERS

Announcement

Current studies of societal trends clearly indicate that users' expectations of the automobile are undergoing a fundamental change. While owning a car was seen as a symbol of social status and a warrant of individual freedom in the past, concerns about the negative impacts of car traffic such as pollution, fatalities and congestion now prevail, particularly in cities. As a consequence, the concept of the automobile is facing the most radical transformation since its initial invention more than a hundred years ago: Electrification of the powertrain allows for zero emission of pollutants and greenhouse gases, automation of the car increases road safety and reduces energy consumption, and shared operation of the vehicle fleet ensures an efficient usage of limited resources such as road space for driving and parking. At the same time, all of these three features support each other in synergetic ways, giving rise to disruptive innovation. The concept of the future vehicle will surely cover a range of new options from self-driving shuttle buses to shared pods and robots for the delivery of goods, but it may also include cars for individual use such a super-light and long-range electric vehicles that are fun to drive.

It is important to understand that the underlying paradigm of the foreseeable transformations of the automobile will be a shift from mechanistic and autarkic to smart and connected systems: Whether it is the electric powertrain, the automated driving functions or the shared operation – all essentially require safe, efficient and reliable self-control, but significantly benefit from additional information on energy, traffic and demand provided by digital platforms in the backbone and the cloud. This is making smart components, modules and architectures and their integration into the networks of power, data and services the key to enabling the automobile of the future. Moreover, providing the ideal basis for big data analysis and deep learning, these smart systems promise further advancements of proactive, adaptive and intelligent on-demand mobility for people and goods in the future.

In view of these developments and projections, the topic of this year's edition of the International Forum on Advanced Microsystems for Automotive Applications (AMAA) is "Smart Systems for Clean, Safe and Shared Road Vehicles". Since more than 20 years, it has been the mission of the AMAA conference to detect novel trends in automotive electronics and communication systems and to discuss the implications early on.

AMAA 2018 – Topics

Leading industrial engineers and academic scholars from all around the world are cordially invited to participate in the dialogue and to submit proposals for papers addressing current research and novel developments. Discussions at the conference will focus particularly on the key topics below.

How to enable the electric, automated and shared car of the future? E.g. electrification, automation & connectivity, next generation vehicular platforms, synergies at component & architectures level, disruptive architectures, AI, low power computing, cloud services & backend, multi-standard communication, smart production, technology transfer from robotics etc.

How to reliably perceive the environment of the vehicle? E.g. sensors for adverse weather or lighting conditions, advancement of contrast & resolutions, multi-sensor concepts, sensor data fusion, energy-efficient vehicular computing, machine-learning based perception, high-precision positioning, interaction with map data, robustness etc.

How to tailor human-machine interaction in automated vehicles? E.g. HMI design for high automation levels, handover concepts, driver monitoring, interaction with VRUs, intention recognition, new entertainment concepts for passengers etc.

How to guarantee data privacy and security? E.g. competing challenges of functional safety & data security, secure communication, authentication, encryption, key management, novel concepts from hard- & software, long-term compatibility of systems etc.

How to provide functional safety levels for and validation of fully automated vehicles? E.g. fail-operational systems, novel e/e architectures, design-for-safety, x-in-the-loop, seamless connectivity, cooperation between automotive & telecom systems, validation of non-deterministic/learning systems, top-down vs. bottom-up safety concepts, homologation, standardization etc.

How to facilitate energy efficiency, minimize pollutant emissions and maximize electric range? E.g. smart engine sensors & controllers, novel hybrid & e-motors & control strategies, smart battery management systems, efficient power electronics, predictive energy optimization, thermal management, wireless/en route charging, energy efficiency impacts of automation etc.

Deadlines

Abstract Submission: until 19 March 2018
Paper Submission: until 14 May 2018

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Abstract Submission

Proposals for presentation of a paper at the 22nd AMAA should be submitted in the form of abstracts including title, names and affiliations of authors and a short summary of the content (not exceeding one page A4) to the AMAA Office (office@amaa.de) by 19 March 2018.

Contributions are expected to address recent research, development, and innovations either for applications or for the technologies and smart systems as enablers.

The selection criteria include scientific soundness and innovative strength of the described work. The evaluation process involves the members of the AMAA Steering Committee. The acceptance of papers will be communicated before 29 March 2018.

Conference Book

Authors of accepted abstracts are expected to submit a paper for the AMAA Conference Book prior to the conference. The book is published worldwide as part of the Springer book series *Lecture Notes in Mobility* (http://www.springer.com/series/11573), which is accessible through libraries worldwide. In order to ensure a timely publication of the book, all manuscripts have to be submitted prior to 14 May 2018.

Registration

The presenting author of an accepted paper is obliged to register for the conference and will benefit from a reduced registration fee. The payment of a registration fee is mandatory for all participants, including the presenting authors. The registration fee covers a copy of the conference book, coffee breaks, lunch and a social event including dinner on the first day of the conference. For registration we offer the following schemes:

Reduced Rate
(Presenting Authors – one per paper, and AMAA Steering Committee Members)
675,- Euro + 19% VAT

Early Bird Rate
(Registration prior to 1 May 2018)
875,- Euro + 19% VAT

Regular Rate
975,- Euro + 19% VAT

Side Events

Working groups e.g. of EPoSS (the ETP on Smart Systems Integration), and other initiatives will meet at dedicated satellite events of the AMAA 2018.

Conference Venue

The Kaiserin Friedrich House is located in the midst of Berlin's lively city center, just a short walk from the central station. Built between 1904 and 1906 as a center for advanced training of the Kaiserin Friedrich Foundation, it quickly developed into an international conference venue even beyond the medical emphasis.

Exhibitor Information

The exhibition is an integral part of the AMAA giving companies the opportunity to present products and services as well as novel technologies to an international expert audience representing automakers, suppliers and academia. Demonstrator vehicles can be shown at a parking lot close to the venue.

Sponsorship Opportunities

There is a multitude of opportunities to bring your company's activities to the attention of the AMAA community. These are ranging from the standard option to include your company's logo into select communications to a platinum option which comprises an entry in the list of sponsors on the first pages of the conference book.

AMAA Conference Book 2017

C. Zachäus, B. Müller, G. Meyer [Eds.],
Advanced Microsystems for Automotive Applications,
2017, Smart Systems Transforming the Automobile.
Lecture Notes in Mobility, Springer
ISBN: 978-3-319-66972-4

Organisers

VDI/VDE Innovation + Technik GmbH
EPoSS – The European Technology Platform on Smart Systems Integration

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