

Smart Systems for the Automobile of the Future

22-23 September 2016, Harnack House, Berlin, Germany

CALL FOR PAPERS

Announcement

The automobile is currently being reshaped at unprecedented pace. Automation and electrification are the two dominant megatrends which dramatically change the choice and design of components, systems, vehicular architectures and ultimately the way we use cars in the coming decades. From CO₂-neutral and emission-free transport facilitated by electrified powertrains over the emerging possibilities for drivers to perform non-driving related tasks in automated vehicles to novel mobility solutions relieving congestion-plagued city centres, the automobile will have to become more human-centric in the future. Along with these changes, new competitors will emerge in the automotive markets whose business models are focused on data-based services and user experiences, not just technologies.

In the pursuit of these opportunities, established automotive industries must adapt to several challenges: Innovation cycles will be driven by software and digital functionalities, while functional safety needs to be taken to the next level to allow automation, thus requiring new tool chains for development, validation and testing. The automobile will host a plethora of electrically actuated components while at the same time requiring the number crunching power of yesterday's supercomputers to perceive its environment, thus requiring novel E/E architectures and consideration of electromagnetic compatibility. Vehicular connectivity and cloud services will be key to extending the perception and decision-making horizons of automated vehicles, to enable cooperative functions and a seamless digital user experience. However, communication standards require harmonization, data security remains a largely un-addressed subject and necessitates cooperation with players from the IT world in alliances not known before.

Thus, grand challenges lie ahead in the automotive world. Their successful resolution requires novel, partly disruptive approaches and design principles in a number of domains. Ultimately, at the heart of the inevitable transformations lies the creation and integration of truly "smart systems for the automobile of the future", which will be the topic of this year's 20th anniversary edition of *the International Forum on Advanced Microsystems for Automotive Applications* (AMAA). The forum's ongoing mission for twenty years has been to detect novel trends in automotive ICT, electronics and smart systems and to discuss the technological implications from early on, and will thus be continued also in this edition.

AMAA 2016 – Topics

Leading engineers and scholars from all around the world are cordially invited to participate in the dialogue and submit proposals for papers addressing ongoing research and novel developments. Discussions at the conference will focus particularly on the application areas mentioned below. We are looking forward to receiving your proposals, and to meeting you for an inspiring conference in the early fall 2016 in Berlin. Key topical foci of the AMAA 2016 include:

How to reach functional safety levels allowing full automation? For example fail-operational systems, novel E/E architectures, functional redundancy, electromagnetic compatibility, design-for-safety, etc.

The 10⁹ mile issue – How to validate automated vehicles? E.g. validation methods, X-in-the-loop, testing scenarios, criticality assessment, validation of non-deterministic/learning systems, homologation, etc.

How to reliably perceive vehicular environments in complex scenarios? E.g. new sensors, multi-sensor concepts, data fusion, energy-efficient vehicular computing, machine-learning based perception, etc.

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

Extending horizons – How to create a smart connected vehicle? For instance multi-standard communication, high-precision positioning, beacon-based ranging, cloud services and backends, data security, etc.

How to minimize CO₂ and pollutant emission? For example smart engine sensors and controllers, hybrid powertrain components & vehicle concepts, etc.

Which smart systems maximize electric range? E.g. novel E-motors & control strategies, smart BMS, efficient power electronics, high-power and hybrid storage, holistic/predictive energy optimization, etc.

How to balance high integration vs. modularity? E.g. modularization strategies for affordable electric vehicles, next-generation vehicular platforms, modular electric powertrains and storage systems, etc.

Deadlines

Abstract Submission: until 1 March 2016

Paper Submission: until 1 May 2016

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Abstract Submission

Proposals for presentation of a paper at the 20th 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 by 1 March 2016.

Contributions are expected to address recent research, development, and innovations either for applications or for the enabling technologies.

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 during March 2016.

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 1 May 2016.

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 April 2016)
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 2016.

Venue

The forum takes place at Harnack House, the historic conference center of the Kaiser Wilhelm Society (predecessor of the Max-Planck-Society), which was a renowned meeting place and cultural center for scientists in the blooming phase of the Weimar republic. It is located a convenient 15-minute train ride away from the city center of Berlin.

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 2015

T. F. Schulze, B. Müller, G. Meyer [Eds.]

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Organisers

VDI/VDE Innovation + Technik GmbH

EPoSS – The European Technology Platform on Smart Systems Integration

Conference Organizing Team

Dr. Beate Müller, Dr. Tim F. Schulze,
Dr. Gereon Meyer (Chairman)

Contact

AMAA Office

c/o VDI/VDE Innovation + Technik GmbH
Steinplatz 1, 10623 Berlin, Germany

Phone: +49 30 310078155

Fax: +49 30 310078225

E-Mail: office@amaa.de

Twitter: @AMAA_Conference