



8th European Congress

EMBEDDED REAL TIME
SOFTWARE AND SYSTEMS

ERTS² 2016

27-29 JANUARY 2016 / TOULOUSE, FRANCE

CENTRE DE CONGRÈS PIERRE BAUDIS

PROGRAMME



Welcome speech



Joseph Sifakis

*Director, RiSD laboratory, EPFL, Lausanne
Director, Center for Integrative Research, Grenoble, France
Congress General Co Chair
and Programme Committee-Chair*

Embedded systems are at the heart of the technological convergence observed over the past thirty years. This convergence has recently accelerated to a reckless and spectacular pace. Being initially focused on integrating computing and telecommunications technologies, its scope has broadened to cover all industrial sectors and services. Today, it is a ubiquitous phenomenon with obvious effects on the integration of devices, services and networks. The same device can be used to give phone calls, watch TV, send messages, play games and monitor health. Mobile devices offer a large variety of services.

The Internet of Things (IoT) is the ultimate vision for ICT. We now have the ability to measure, sense and see the exact condition of practically everything. People, systems and objects can communicate and interact with each other in entirely new ways. We are moving slowly but inevitably toward a unification of networking infrastructures, including telecommunication networks, the internet, industrial and home networks. Finally, we should be able to respond to changes quickly and accurately, by predicting events and optimizing resources.

An important question is to what extent this ambitious vision of “universal global neural network” is reachable today. It is currently agreed that there exist a few important roadblocks to this evolution.

One is the lack of security guarantees. The internet infrastructure and systems in general, are vulnerable. They have been built in an ad hoc manner and it is impossible to provably enhance their security.



Kjeld Hjortnaes,

*Head of Software Systems Division (TEC-SW)
at ESA/ESTEC - The Netherlands
Congress General - Co Chair*

The other roadblock is the lack of guarantees for response time and latency in the internet. This is a major impediment to the development of fully automated services.

Finally, the lack of standardization in the area, as well as the changing nature of the IoT technology itself, is part of the reason why widespread adoption is further than its promoters think.

Embedded systems play a central role in the IoT vision. They are essential components of the Internet of Things and as such, their evolution should adequately address the changing needs in the area.

I believe that ERTS 2016 as the unique European cross-sector event on Embedded Software and Systems gathering together researchers, engineers and professionals, is an excellent forum for addressing all these issues and exchanging on future challenges and opportunities.

General Information

Registration conference access

All attendees must register upon arrival and receive a conference badge which will be requested to access all ERTS² 2016 events. The registration desk opening hours are as follows:

Tuesday 26 January	16:00 – 18:00
Wednesday 27 January	08:00 – 17:45
Thursday 28 January	08:30 – 18:00
Friday 29 January	08:30 – 16:00

Conference proceedings

All conference attendees will receive a conference Folder including the Programme, proceedings on a USB key and Book of Abstracts. Proceedings will be also available to download on the website after the conference.

Exhibition

A major exhibition is run in parallel to ERTS² 2016, covering a wide range of products and services in the field of embedded software and systems. The exhibition is located in the room Concorde, Level -1.

Wednesday 27 January	09:00 – 19:30
Thursday 28 January	08:30 – 18:30
Friday 29 January	08:30 – 16:00

Coffee Breaks

Coffee breaks will take place in the Exhibition Hall, Room Concorde, Level - 1.

Wednesday 27 January from	10:30 to 11:00 and from 16:15 to 16:45
Thursday 28 January from	10:30 to 11:00 and from 16:00 to 16:30
Friday 29 January from	10:30 to 11:00

Conference Meals

Lunches are included in the Registration fees and will be served in room Caravelle, Level 0, Wednesday from 12:30 to 14:00 - Thursday from 12:45 to 14:00 & Friday from 12:45 to 14:15.

Transportation

A complimentary transportation pass will be distributed to the attendees at the badge withdrawal. This pass gives access to the Toulouse official transportation: tramway, metro, buses and shuttle to airport.

Internet Access

A WIFI system will be provided, giving free internet access to all ERTS² 2016 Conference attendees.

Network: ERTSS2016
Password: ertss2016

Luggage room

A cloakroom is at the attendees disposal at the Conference centre, in front of the Registration desk, Level 0.

Social Events

- Welcome Reception on Wednesday 27 January - from 17:45 to 18:45
Exhibition Hall, Room Concorde, Level -1
- Gala Evening on Thursday 28 January - from 19:30 to 23:00,
Room Caravelle 1+2, Level 0 of the Congress Center.
The invitation will be requested at the main entrance (given at the badge withdrawal for those who benefit from a full registration including the gala dinner). Additional gala dinner can be purchased onsite (until Wednesday 27 January) at the price of 90 €.

Pierre Baudis Congress Center

ERTS² 2016 will be held at the Pierre Baudis Convention Center, located in the centre of Toulouse.

Address:

Centre de Congrès Pierre Baudis

11, esplanade Compans Caffarelli
31000 Toulouse, France

Access:

By Metro

Compans Caffarelli (Line B) Station

By bus

The congress centre is served by the following bus lines:
N°1 N°70 & N°71 (Bus stop Compans Caffarelli),
N°16 (Bus stop Jeanne d'Arc)

Shuttle service between Toulouse/Blagnac Airport to/from Pierre Baudis Congress Center

A shuttle bus every 20 minutes with a station in front of the Pierre Baudis Congress Center (Compans Caffarelli)

Taxi Company

A station is available just in front of the entrance of the Hotel Mercure Atria,
Boulevard Lascrosse
To call a taxi: + 33 (0)5 61 20 90 00

ERTS² 2016 at Pierre Baudis Congress Center

LEVEL 2

Room Auditorium St Exupéry
• Plenary Sessions, Panels & Sessions A
Room Guillaumet 1+2 • Sessions B

LEVEL 1

Room Ariane 1 • Sessions C
Room Ariane 2 • Sessions D

LEVEL 0

Main Entrance Hall • Conference registration
& Press Area
Room Caravelle 1 + 2 • Lunches and Gala Evening

LEVEL -1

Room Concorde 1+2
• Exhibition registration
• Exhibition & B to B meetings
• Welcome reception & Coffee Breaks

ERTS² 2016 PROGRAMME AT-A-GLANCE

Embedded Computing
Platforms and Network
Systems

Dependability: Safety,
Security, Quality of Service,
Fault tolerance

Model Driven
Engineering

Processes,
Methods and Tools

Software Verification/
Validation/Certification

Application Domain

WEDNESDAY 27 JANUARY 2016

09:00 - 09:15	EXHIBITION	OPENING ALLOCUTIONS			
09:15 - 10:30		OPENING SESSION Joseph SIFAKIS , EPFL Lausanne & Kjeld HJORTNAES Head of Software Systems Division (TEC-SW) at ESA/ESTEC - The Netherlands			
10:30 - 11:00		EXHIBITION VISIT / REFRESHMENT BREAK - Concorde Room Level -1			
11:00 - 12:30		We.1.A Avionic Certification	We.1.B Multicore	We.1.C Model Checking	We.1.D Applicative Domain
12:30 - 14:00		LUNCH - Caravelle Room, level 0			
14:00 - 14:45		KEYNOTE ADDRESS 1 - The Internet of Important Things Edward A. LEE , Professor, Berkeley University - USA			
14:45 - 16:15		We.2.A Certification	We.2.B Network	We.2.C Code Generation	We.2.D Design Space Exploration 1
16:15 - 16:45		EXHIBITION VISIT & REFRESHMENT BREAK - Concorde Room, level -1			
16:45 - 17:45		PANEL 1 - Foundations of trust for safety critical software Jean Paul BLANQUART , Airbus Defence and Space – Space Systems - France			
17:45 - 18:45		WELCOME RECEPTION - Concorde Room Level -1			

THURSDAY 28 JANUARY 2016

09:00 - 10:30	EXHIBITION	Th.1.A Design Space Exploration 2	Th.1.B Network & Simulation	Th.1.C Virtual Platforms	Th.1.D Dependability
10:30 - 11:00		EXHIBITION VISIT / REFRESHMENT BREAK - Concorde Room Level -1			
11:00 - 11:45		KEYNOTE ADDRESS 2 - Real-time Embedded Intelligence and Systems: Core for Digitalisation of European Industry Heinrich DAEMBKES , Airbus Defence and Space, Germany			
11:45 - 12:45		Th.2.A Code Generation	Th.2.B Multicore & Predictability	Th.2.C Test	Th.2.D Safety & Security
12:45 - 14:00		LUNCH - Caravelle Room, level 0			
14:00 - 15:00		PANEL 2 - Internet of Things: business models & technology enablers Joseph SIFAKIS , EPFL Lausanne			
15:00 - 16:00		Th.3.A Tool Support	Th.3.B Process	Th.3.C Requirement Validation	Th.3.D Modeling for Safety
16:00 - 16:30		EXHIBITION VISIT / REFRESHMENT BREAK - Concorde Room, level -1			
16:30 - 18:00		Th.4.A Model Driven Engineering in practice 1	Th.4.B Multicore & Automotive	Th.4.C Static Analysis	Th.4.D Model Driven Engineering in practice 2
19:30 - 23:00		GALA EVENING - Caravelle Room, level 0			

FRIDAY 29 JANUARY 2016

09:00 - 10:30	EXHIBITION	Fr.1.A Domain Specific Language 1	Fr.1.B Domain Specific Language 2	Fr.1.C Simulation	Fr.1.D Methods & Tools
10:30 - 11:00		EXHIBITION VISIT / REFRESHMENT BREAK - Concorde Room Level -1			
11:00 - 11:45		KEYNOTE ADDRESS 3 - IoT and Aeronautics, two separate worlds? François NEUMANN , VP, Director of Research and Technology Safran Electronics, France			
11:45 - 12:45			Fr.2.B Multicore & ARM	Fr.2.C Worst Case Execution Time	
12:45 - 14:15		LUNCH - Caravelle Room, level 0			
14:15 - 15:15		PANEL 3 - Highly Automated Driving Laurent MEILLAUD , France			
15:15 - 15:45		CLOSING SESSION			

WEDNESDAY 27 JANUARY 2016

ROOM AUDITORIUM ST EXUPERY

09:00-09:15 **Opening Allocations**

09:15-10:30 **Opening session by conference chairmen**

Joseph SIFAKIS - Director, RiSD laboratory, EPFL, Lausanne
Director, Center for Integrative Research, Grenoble & Congress
General - Co chair & Programme Committee Chair

Kjeld HJORTNAES - Head of Software Systems Division (TEC-SW)
at ESA/ESTEC - The Netherlands - Congress General - Co chair

11:00-12:30

ROOM AUDITORIUM ST EXUPERY

We.1.A - Avionic Certification

Chairman:

Pascal Traverse - Airbus, France

We.1.A.1 Data Flow Model Coverage Analysis: Principles and Practice

Jean-Louis Camus, Carole Haudebourg

- Esterel Technologies, France

Marc Schlickling - Konzept Informations
systeme GmbH, Germany

Jörg Barro - MTU, Germany

We.1.A.2 Applying Model-Based Techniques for Aerospace Projects in Accordance with DO-178C, DO-331, and DO-333

Ulrich Eisemann - dSPACE, Germany

We.1.A.3 Introducing SCADE Model-Based Development into a Safety-Critical System Environment

Philip Birkin, Duncan Brown - Rolls-
Royce - Controls and Data Services,
United Kingdom of Great Britain and
Northern Ireland

ROOM GUILLAUMET

We.1.B - Multicore

Chairman:

Gilles Le Calvez - Valeo, France

We.1.B.1 Hard Real Time and Mixed Time Criticality on Off-The-Shelf Embedded Multi-cores

Albert Cohen, Marc Pouzet, Zhen Zhang -
INRIA-Parkas, France

Valentin Perrelle - CEA-List, France

Dumitru Potop-Butucaru - INRIA-AOSTE,
France

Elie Soubiran - IRT/SystemX & Alstom
Transport, France

We.1.B.2 DREAMS about reconfiguration and adaptation in avionics

**Guy Durrieu, Eric Noulard, Claire
Pagetti** - ONERA, France

**Gerhard Fohler, Gautam Gala, Simara
Perez** - TU Kaiserslautern, Germany

Sylvain Girbal, Daniel Gracia Perez -
Thales, France

We.1.B.3 A Multi-Core Interference-Aware Schedulability Test for IMA Systems, as a Guide for SW/HW Integration

Soukayna M'Sirdi, Airbus Group Innova-
tions/IRIT, France

Wenceslas Godard - Airbus Group Innova-
tions, France

Marc Pantel - IRIT, France

ROOM CONCORDE LEVEL -1

10:30-11:00 **Exhibition visit/Refreshment break**

ROOM ARIANE 1

We.1.C - Model Checking

Chairman:

Benoît Souyri - Thales, France

We.1.C.1 Formal Specs Verifier ATG: a Tool for Model-based Generation of High Coverage Test Suites

**Alberto Ferrari, Orlando Ferrante,
Marco Marazza** - Advanced Laboratory
on Embedded Sys (ALES) S.r.l., Italy

We.1.C.2 Model Checking of Scade Designed Systems

**Sebastien Heim, Xavier Dumas, Eric
Bonnafous** - CSSI, France

**Philippe Dhaussy, Ciprian Teodorov,
Luka Leroux** - ENSTA-Bretagne, France

We.1.C.3 Industrial Grade Model Checking

**Mathieu Clabaut, Ning Ge, Nicolas
Breton, Yoann Fonteneau** - Systerel,
France

Eric Jenn - IRT Saint-Exupéry, France

Rémi Delmas - Onera, France

ROOM ARIANE 2

We.1.D - Applicative Domain

Chairman:

Frédéric Pinot - Ansaldo STS, France

We.1.D.1 Safety and Security for the internet of Things

Mehmet Oezer, Jacques Brygier - SYSGO,
Germany

We.1.D.2 A Distributed User-Centered Approach For Control In Ambient Robotic

Nicolas Verstaebel, Fabrice Robert -
Sogeti High Tech, France

Christine Regis, Marie-Pierre Gleizes -
IRIT - Université de Toulouse, France

We.1.D.3 Development of an algorithm for energy efficient automated train driving

**Artem Ozhigin, Pavel Prunev, Victor
Sverdlin, Yulia Vikulina** - Siemens LLC,
Russian Federation

WEDNESDAY 27 JANUARY 2016

ROOM CARAVELLE LEVEL 0

12:30-14:00 **Lunch**

14:45-16:15

ROOM AUDITORIUM ST EXUPERY

We.2.A - Certification

Chairman: Gérard Ladier - Aerospace Valley, France

We.2.A.1 Structural Coverage Criteria for Executable Assertions

Cyrille Comar, Jérôme Guitton, Olivier Hainque, Thomas Quinot - AdaCore, France

We.2.A.2 MIMOSA: Towards a model driven certification process

Pierre Bieber, Frédéric Boniol, Guy Durrieu, Olivier Poitou, Thomas Polacsek, Virginie Wiels - ONERA, France
Ghilaine Martinez - DGA, France

We.2.A.3 Perspectives on Probabilistic Assessment of Systems and Software

Emmanuel Ledinot - Dassault Aviation, France

Jean-Paul Blanquart - Airbus Defence and Space, France

Jean Gassino - IRSN, France

Bertrand Riquie, Philippe Baufreton - Safran, France

Jean-Louis Boulanger - CERTIFER, France

Jean-Louis Camus - ANSYS-Esterel Technologies, France

Cyrille Comar - Adacore, France

Hervé Delseny - Airbus, France

Philippe Quéré - Renault, France

ROOM GUILLAUMET

We.2.B - Network

Chairman: Christophe Moreno - Thales Alenia Space, France

We.2.B.1 AeroRing: Avionics Full Duplex Ethernet Ring with High Availability and QoS Management

Ahmed Amari, Ahlem Mifdaoui, Fabrice Frances, Jerome Lacan - University of Toulouse/ISAE, France

David Rambaud - BetaTech, France

Loïc Urbain - Eca Group, France

We.2.B.2 Performance impact of the interactions between time-triggered and rate-constrained transmissions in TTEthernet

Marc Boyer, Hugo Daigmorte - ONERA, France

Jörn Migge - RTaW, France

Nicolas Navet - University of Luxembourg, Luxembourg

We.2.B.3 A Symbiotic Approach to Designing Cross-Layer QoS in Embedded Real-Time Systems

Florian Greff - Thales Research & Technology, LORIA (University of Lorraine), France

Eric Dujardin, Arnaud Samama - Thales Research & Technology, France

France Ye-Qiong Song, Laurent Ciarletta - LORIA - University of Lorraine, France

ROOM AUDITORIUM ST EXUPERY

14:00-14:45 **Keynote Address 1: The Internet of Important Things**

Keynote speaker: Edward A. LEE - Professor, Berkeley University - USA

ROOM ARIANE 1

We.2.C - Code Generation

Chairman: Benoît Dupont de Dinechin - Kalray, France

We.2.C.1 Fine-Tuning the Accuracy of Numerical Computations in Avionics Automatic Code Generators

Alexis Wery - Airbus Operations SAS, University of Perpignan, France

David Delmas - Airbus operations SAS, France

Matthieu Martel - University of Perpignan, France

We.2.C.2 CompCert – A Formally Verified Optimizing Compiler

Xavier Leroy - Inria Paris-Rocquencourt, France

Sandrine Blazy - University of Rennes 1 - IRISA, France

Daniel Kästner, Bernhard Schommer, Markus Pister, Christian Ferdinand - AbsInt GmbH, Germany

We.2.C.3 Integration of Polychrony and QGen Model Compiler

Christophe Junke, Jean-Pierre Talpin, Loïc Besnard, Thierry Gautier - INRIA Rennes Bretagne Atlantique, France

ROOM ARIANE 2

We.2.D - Design Space Exploration 1

Chairman: Uwe Kuehne, - Airbus Defence and Space GmbH, Germany

We.2.D.1 Lean Model-Driven Development through Model-Interpretation: the CPAL design flow

Nicolas Navet, Sebastian Altmeyer - University of Luxembourg, Luxembourg
Loïc Fejoz, Lionel Havet - RealTime-at-Work, France

We.2.D.2 Making Modeling Assumptions an Explicit Part of Real-Time Systems Models

Pierre de Sagui-Sannes - ISAE, Université de Toulouse, France

Ludovic Apvrille - Telecom ParisTech, France

We.2.D.3 An Architecture-Led Safety Analysis Method

Peter Feiler, David Gluch - Software Engineering Institute, USA

John McGregor - Clemson University, USA

ROOM CONCORDE, LEVEL -1

16:15-16:45 **Exhibition visit/Refreshment break**

ROOM AUDITORIUM ST EXUPERY

16:45-17:45 **Panel 1: Foundations of trust for safety critical software**

Jean Paul Blanquart - Airbus Defence and Space - Space Systems - France

ROOM CONCORDE, LEVEL 0

17:45-18:45 **Welcome Reception**

THURSDAY 28 JANUARY 2016

09:00-10:30

ROOM AUDITORIUM ST EXUPERY

Th. 1.A - Design Space Exploration 2
Chairman: Jens Braband - Siemens AG, Germany

Th. 1.A.1 Model-compilation challenges for Cyber-Physical systems (CPS)

Belgacem Ben Hedia, Etienne Hamelin, Sara Tucci, Chokri Mraidha - CEA-LIST, France

Th. 1.A.2 Pareto-efficient deployment synthesis for safety-critical applications in seamless model-based development

Sergey Zverlov, Maged Khalil, Mayank Chaudhary - fortiss, Germany

Th. 1.A.3 Comparing several candidate architectures (variants): An Industrial Case Study

Sébastien Madélenat, Christophe Labreuche, Jérôme Le Noir - Thales Research & Technology, France
Grégory Gailliard - Thales Communications & Security, France

ROOM GUILLAUMET

Th. 1.B - Network & Simulation
Chairman: Patrick Cormery - Astrium Space Transportation, France

Th. 1.B.1 Timing-accurate simulation in the design of real-time automotive Ethernet networks

Nicolas Navet - University of Luxembourg, Luxembourg
Jan Seyler - Daimler AG, Mercedes-Benz Cars Development, Germany
Jörn Migge - RTaW, France

Th. 1.B.2 A Practical Approach to the Simulation of Safety-critical Automotive Control Systems considering Complex Data Flows

Sébastien Dube - Hella, France
Mesut Özhan - INCHRON GmbH, Germany
Achim Rettberg - Hella, Germany

Th. 1.B.3 Qualitative simulation and validation of complex hybrid systems

Jean-Pierre Gallois, Jean-Yves Pierron - CEA, France

ROOM ARIANE 1

Th. 1.C - Virtual Platforms
Chairman: Eric Faure - ASTC Design Partners, France

Th. 1.C.1 Xvisor VirtIO CAN: Fast Virtualized CAN

Jimmy Durand Wesolowski, Julien Viard de Galbert, Guillaume Scigala - OpenWide, France
Aymen Boudguiga - IRT SystemX, France
Anup Patel - Individual researcher, India
Mathieu Donain - PSA Peugeot Citroën - France
Witold Kludel - Renault, France

Th. 1.C.2 An Experiment on Exploiting Virtual Platforms for the Development of Embedded Equipments

Philippe Cuenot - Continental, France
Eric Jenn, Emilie Rouland - IRT Saint-Exupery, France
Eric Faure, Nicolas Broueilh - ASTC, France

Th. 1.C.3 QBox: an industrial solution for virtual platform simulation using QEMU and SystemC TLM-2.0

Guillaume Delbergue, Mark Burton - GreenSocs, France
Christophe Jego - IMS Laboratory, France
France Bertrand Le Gal - IMS Laboratory - University of Bordeaux, France

ROOM ARIANE 2

Th. 1.D - Dependability
Chairman: Philippe Baufreton - Sagem, France

Th. 1.D.1 Safer Marine and Offshore Software with Formal-Verification-Based Guidelines

Florent Kirchner, Virgile Prevosto, Franck Vedrine - CEA, LIST, France
Franck Sadmi, Lucas Duboc, Héliène Marteau - Bureau Veritas, France
Sébastien Flanc - Sirehna, France

Th. 1.D.2 Development of a safe CPS component: the hybrid parachute, a remote termination add-on improving safety of UAS

Laurent Ciarletta - LORIA INRIA Nancy Grand-Est France
Loïc Fejoz - RealTime-at-Work, France
Adrien Guenard - Loria, France
Nicolas Navet - University of Luxembourg, Luxembourg

Th. 1.D.3 Towards Resilient Computing on ROS for Embedded Applications

Jean-Charles Fabre, Matthieu Roy, Matthieu Amy, William Excoffon, Miruna Stoicescu - LAAS-CNRS, France
Michaël Lauer - Université de Toulouse/LAAS-CNRS France

ROOM CONCORDE LEVEL - 1

10:30-11:00 **Exhibition visit/Refreshment break**

ROOM AUDITORIUM ST EXUPERY

11:00-11:45 **Keynote address 2**
Real-time Embedded Intelligence and Systems: Core for Digitalisation of European Industry
Heinrich DAEMBKES - Airbus Defense and Space, Germany

THURSDAY 28 JANUARY 2016

11:45-12:45

ROOM AUDITORIUM ST EXUPERY

Th.2.A - Code Generation

Chairman: Cyrille Comar - AdaCore, France

Th.2.A.1 RTE Generation and BSW Configuration Tool-Extension for Embedded Automotive Systems

Georg Macher, Eugen Brenner, Christian Kreiner - Graz University of Technology, Austria
Rene Obendrauf, Eric Armengaud - AVL List GmbH, Austria

Th.2.A.2 From system functional definition to software code

David Lesens - Airbus Defence and Space, France

ROOM GUILLAUMET

Th.2.B - Multicore & Predictability

Chairman: Denis Claraz - Continental Automotive, France

Th.2.B.1 Bounding Resource Contention Interference in the Next-Generation Microprocessor (NGMP)

Javier Jalle, Mikel Fernandez, Jaime Abella - Barcelona Supercomputing Center, Spain
Jan Andersson - Cobham Gaisler, Sweden

Mathieu Patte - Airbus, France
Luca Fossati, Marco Zulianello - European Space Agency, The Netherlands
Francisco-J. Cazoria - Barcelona Supercomputing Center / Spanish National Research Council (IIIA-CSIC), Spain

Th.2.B.2 Predictable composition of memory accesses on many-core processors

Quentin Perret - Airbus Operations S.A.S / ONERA, France
Pascal Maurère, Benoît Triquet - Airbus Operations S.A.S, France
Eric Noulard, Claire Pagetti - ONERA, France
Pascal Sainrat - IRIT, France

ROOM ARIANE 1

Th.2.C - Test

Chairman: Eric Conquet - ESA, The Netherlands

Th.2.C.1 Automatic Interleaving for Testing Distributed Systems

Mihal Brumbulli, Emmanuel Gaudin - PragmaDev, France

Th.2.C.2 Facing ADAS validation complexity with usage oriented testing

Frédérique Vallée, Laurent Raffaelli - ALL4TEC, France
Xavier Rouah - INTEMPORA, France
Guy Fayolle - ARMINES, France
Philippe De Souza - Civitec, France
Matthieu Pfeiffer - Magillem, France
Stéphane Géronimi - PSA, France
Frédéric Pétrot - TIMA, France
Samia Ahlad - Valéo, France

ROOM ARIANE 2

Th.2.D - Safety & Security

Chairman: Jean Paul Blanquart - Airbus Defence and Space – Space Systems - France

Th.2.D.1 What's Security Level got to do with Safety Integrity Level?

Jens Braband - Siemens AG, Germany

Th.2.D.2 Applying MILS principles to design connected embedded devices supporting the cloud, multi-tenancy and App Stores

Mark Pitchford - Lynx Software Technologies, United Kingdom of Great Britain and Northern Ireland

ROOM CARAVELLE LEVEL 0

12:45-14:00 **Lunch**

ROOM AUDITORIUM ST EXUPERY

14:00-15:00

Panel 2

Internet of Things: business models & technology enablers

Joseph Sifakis - EPFL Lausanne

THURSDAY 28 JANUARY 2016

15:00-16:00

ROOM AUDITORIUM ST EXUPERY

Th.3.A - Tool Support

Chairman: Frédéric Pinot - Ansaldo STS, France

Th.3.A.1 Accelerate the Development of Certified Software for Train Control & Monitoring Systems

Franck Corbier - Dassault Systemes, France

Th.3.A.2 Merging and Processing Heterogeneous Models

Pierre Dissaux - Ellidiss Technologies, France
Brendan Hall - Honeywell, USA

ROOM GUILLAUMET

Th.3.B - Process

Chairman: Lionel Burgaud - Aeroconseil, France

Th.3.B.1 SAVOIR: Reusing specifications to favour product lines

Jean-Loup Terraillon - European Space Agency, The Netherlands
Savoir Advisory Group - European Space Industry, The Netherlands

Th.3.B.2 A Lean Systems Engineering Approach for the Development of Safety-critical Avionic Systems

Ralf Bogusch, Sabine Ehrich, Roland Scherer, Tobias Sorg, Robert Wöhler - Airbus Defence and Space GmbH, Germany

ROOM ARIANE 1

Th.3.C - Requirement Validation

Chairman: Thierry Seynave - ESG Automotive France, France

Th.3.C.1 Debugging Real-Time Systems Requirements with STIMULUS: a Case-Study from the Automotive Industry

Fabien Gaucher, Bertrand Jeannot - ARGOSIM, France

Th.3.C.2 Incremental Life Cycle Assurance of Safety-Critical Systems

Julien Delange, Peter Feiler, Neil Ernst, - Software Engineering Institute, USA

ROOM ARIANE 2

Th.3.D - Modeling for Safety

Chairman: Mohamed Kaâniche - LAAS-CNRS, France

Th.3.D.1 Aspect-oriented Data and Safety Modeling for Cyber-Physical Systems in Process Automation

Dirk Kuschnerus, Thomas Musch - Ruhr-Universität Bochum, Germany
Attila Bilgic - KROHNE Messtechnik GmbH, Germany

Th.3.D.2 Efficient Identification of Safety Goals in the Automotive E/E Domain

Rolf Johansson - SP, Sweden

ROOM CONCORDE LEVEL -1

16:00-16:30 **Exhibition visit/Refreshment break**

THURSDAY 28 JANUARY 2016

16:30-18:00

ROOM AUDITORIUM ST EXUPERY

Th.4.A - Model Driven Engineering in practice 1

Chairman: Emmanuel Ledinot - Dassault Aviation, France

Th.4.A.1 Architecture-led Diagnosis and Verification of a Stepper Motor Controller

Peter Feiler, Chuck Weinstock, John Goodenough, Julien Delange, Ari Klein, Neil Ernst - Software Engineering Institute, USA

Th.4.A.2 Benefits of Model Based System Engineering for Avionics Systems

Thierry Le Sergent, François-Xavier Dormoy, Alain Le Guennec - Esterel Technologies, France

Th.4.A.3 A Seamless Model-Transformation between System and Software Development Tools

Georg Macher, Harald Sporer, Eugen Brenner, Christian Kreiner - Graz University of Technology, Austria
Eric Armengaud - AVL List GmbH, Austria

ROOM GUILLAUMET

Th.4.B - Multicore & Automotive

Chairman: Olivier Guetta - Renault, France

Th.4.B.1 Optimizing Application Distribution on Multi-Core Systems within AUTOSAR

Wenhao Wang, Sylvain Cotard, Fabrice Gravez, Yael Chambrin - Valeo, France
Benoît Miramond - CNRS/ENSEA/UCP

Th.4.B.2 Shared SW development in Multi-Core automotive context

Denis Claraz - Continental Automotive SAS, France
Lothar Michel - Audi AG, Germany
Ralph Mader - Continental Automotive Germany AG, Germany
Torsten Flaemig - Volkswagen AG, Germany

Th.4.B.3 Migration of automotive powertrain control strategies to multi-core computing platforms – lessons learnt

Eric Armengaud, Ismar Mustedanagic, Markus Dohr - AVL List GmbH, Austria
Can Kurtulus - AVL Research and Engineering Turkey, Austria
Marco Novaro - Ideas and Motion, Italy
Christoph Gollrad - AVL Software and Functions GmbH, Germany
Georg Macher - Graz University of Technology, Austria

ROOM ARIANE 1

Th.4.C - Static Analysis

Chairman: Hervé Delseny - Airbus, France

Th.4.C.1 Taking Static Analysis to the Next Level: Proving the Absence of Run-Time Errors and Data Races with Astrée

Antoine Miné - Sorbonne University, University Pierre and Marie Curie, CNRS, LIP6, France
Laurent Mauborgne, Daniel Kästner, Stephan Wilhelm, Christian Ferdinand - AbsInt GmbH, Germany

Xavier Rival, Jerome Feret - École normale supérieure, France
Patrick Cousot - Courant Institute of Mathematical Sciences, NYU, USA

Th.4.C.2 Bringing SPARK to C developers

Johannes Kanig, Quentin Ochem, Cyrille Comar - AdaCore, France

Th.4.C.3 Spreading Static Analysis with Frama-C in Industrial Contexts

Stephane Duprat, Victoria Moya Lamiel - AtoS, France
Florent Kirchner, Loïc Correnson - CEA, France
David Delmas - Airbus, France

ROOM ARIANE 2

Th.4.D - Model Driven Engineering in practice 2

Chairman: Philippe Cuenot - Continental Automotive, France

Th.4.D.1 Property Model Methodology: A First Assessment in the Avionics Domain

Patrice Micouin - Arts et Métiers ParisTech, LSIS, UMR CNRS 7296, France
Louis Fabre, Pascal Pandolfi - Airbus Helicopters, France

Th.4.D.2 MDX and AUTOSAR Standards for Model Sharing to leverage Tier1 - OEM cooperation in the ECU software development

Stephane Louvet, Mouham Tanimou - Robert Bosch GmbH, France

Th.4.D.3 A Model-driven and Tool-integration Framework for Whole-vehicle Co-simulation Environment

Lu Jinzhi - kth Royal Institute of Technology, China
Dejiu Chen, Jad El-Khoury, Frédéric Loiret - KTH Royal Institute of Technology, Sweden
Martin Törngren - ITM, KTH, Sweden

ROOM CARAVELLE LEVEL 0

19:30-23:00 **Gala Evening**

FRIDAY 29 JANUARY 2016

09:00-10:30

ROOM AUDITORIUM ST EXUPERY

Fr.1.A - Domain Specific Language 1
Chairman: Emmanuel Ledinot - Dassault Aviation, France

Fr.1.A.1. A Tool-Supported Approach for Concurrent Execution of Heterogeneous Models

Benoit Combemale - IRISA, Université de Rennes 1, France

Cédric Brun - Obeo, France

Joël Champeau - ENSTA Bretagne, France

Xavier Crégut - INPT ENSEIHT, IRIT, France

Julien Deantoni - UNS - I3S - INRIA Sophia Antipolis - Méditerranée, France

Jérôme Le Noir - Thales Research & Technology, France

Fr.1.A.2 Towards an Ontology-Driven Framework for Simulation Model Development

Sangeeth Saagar Ponnusamy - Airbus Operations SAS, LAAS-CNRS, France

Patrice Thebault - Airbus Operations S.A.S, France

Vincent Albert - CNRS LAAS, France

Fr.1.A.3 Tool Support for a Method and a Language Integrating Model Refinements and Project Management

Salma Bergaoui, Ivan Llopard, Christian Fabre, Fayçal Benaziz - CEA, LETI, France

Nicolas Hili - LIG, France

ROOM GUILLAUMET

Fr.1.B - Domain Specific Language 2
Chairman: Scott Beecher - Pratt and Whitney United Technologies Corporation, USA

Fr.1.B.1 The Unified Model-Based Design: how not to choose between Scade and Simulink

Jean-Louis Dufour, Bertrand Corruble, Bertrand Tavernier - Sagem, France

Fr.1.B.2 MBSE with ARCADIA Method and Capella Tool

Pascal Roques - PRFC, France

Fr.1.B.3 Model Driven Engineering with Capella and AADL

Bassem Ouni, Pierre Gauffillet, Eric Jenn - IRT-saint exupéry, Toulouse, France

Jérôme Hugues - ISAE, Toulouse, France

ROOM ARIANE 1

Fr.1.C - Simulation
Chairman: Jean-Luc Dormoy - EDF Group, France

Fr.1.C.1 Virtual Yet Precise Prototyping: An Automotive Case Study

Daniela Genius - LIP6, France

Ludovic Aprville - LTCI, France

Fr.1.C.2 Linking model predictive control (MPC) and system simulation tools to support automotive system architecture choices

Dirk von Wissel, Vincent Talon - RENAULT SA, France

Vincent Thomas, Benoist Grangier - SIEMENS, France

Lukas Lansky - HONEYWELL, Czech Republic

Michael Uchanski - HONEYWELL, Switzerland

Fr.1.C.3 Concurrent Programming of Microcontrollers, a Virtual Machine Approach

Steven Varoumas, Emmanuel Chailoux - LIP6, France

Benoît Vaugon - ENSTA, France

ROOM ARIANE 2

Fr.1.D - Methods & Tools
Chairman: Louis-Claude Vrignaud - Continental Automotive, France

Fr.1.D.1 Asynchronous modeling in railway systems

Emmanuel Gaudin - PragmaDev, France

Fr.1.D.2 TASTE in action

Maxime Perrotin, Marcel Verhoef, Damien Galano - European Space Agency, The Netherlands

Konrad Grochowski, Michał Mosdorf, Michał Kurowski - N7 Mobile, Poland

François Denis, Estelle Graas - CSL, Belgium

Fr.1.D.3 Designing, developing and verifying interactive components iteratively with djnn

Stéphane Chatty, Mathieu Magnaudet, Daniel Prun, Stéphane Conversy, Stéphanie Rey, Mathieu Poirier - Université de Toulouse - ENAC, France

ROOM CONCORDE LEVEL -1

10:30-11:00 **Exhibition visit/Refreshment break**

ROOM AUDITORIUM ST EXUPERY

11:00-11:45 **Keynote address 3 - IoT and Aeronautics, two separate worlds ?**
François NEUMANN - VP, Director of Research and Technology Safran Electronics, France

FRIDAY 29 JANUARY 2016

11:45-12:45

ROOM AUDITORIUM ST EXUPERY

ROOM GUILLAUMET

Fr.2.B - Multicore & ARM
Chairman: Eric Armengaud - AVL List GmbH, Austria

Fr.2.B.1 Making Full use of Emerging ARM - based Heterogeneous Multicore SoCs

Felix Baum, Arvind Raghuraman - Mentor, USA

ROOM ARIANE 1

Fr.2.C - Worst Case Execution Time
Chairman: Scott Beecher - Pratt and Whitney United Technologies Corporation, USA

Fr.2.C.1 On the Reliability of Probabilistic Worst-Case Execution Time Estimates

Fabrice Guet, Luca Santinelli, Jerome Morio - ONERA, France

Fr.2.C.2 When the worst-case execution time estimation gains from the application semantics

Armelle Bonenfant, Hugues Cassé, Marianne De Michiel, Pascal Sotin - IRIT - Université de Toulouse, France
Fabienne Carrier, Nicolas Halbwachs, Claire Maiza, Catherine Parent-Vigouroux, Pascal Raymond - Univ. Grenoble - Verimag, France
Philippe Cuenot, Denis Claraz - Continental Automotive SAS, France
Vincent Mussot - IRIT, France
Isabelle Puaut - Univ. Rennes 1, IRISA, France
Erven Rohou - Inria - IRISA, France

ROOM ARIANE 2

ROOM CARAVELLE LEVEL 0

12:45-14:15 **Lunch**

ROOM AUDITORIUM ST EXUPERY

14:15-15:15 **Panel 3: Highly Automated Driving**
Moderator: Laurent MEILLAUD - Journalist France

15:15-15:45 **Closing Session**

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The Aerospace Valley World Competitiveness Cluster allies the Midi-Pyrenees & Aquitaine regions to constitute Europe's leading pool of jobs in the field of aeronautics, space and embedded systems. The purpose of the Aerospace Valley cluster is to grow jobs in its regions in the aeronautics, space and embedded systems sectors. 11,000 new jobs have already been created in the last three years (INSEE figures).

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- the dependability and reliability of embedded systems at all levels (software/hardware)
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- systems diagnosis and prognosis
- new modes of human-system interaction and inter-systems communication
- the design of smaller, less expensive and more powerful components in conjunction with Nanolnnov, a major program

Embedded systems also offer numerous opportunities for diversification, particularly in the areas of health, energy and home automation.

See Aerospace Valley web site for more information and contact: <http://www.aerospace-valley.com/en/>

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