

# SAE 2016 VEHICLE ELECTRIFICATION AND CONNECTED VEHICLE TECHNOLOGY FORUM 汽车电气化与智能化技术论坛

November 30 - December 1, 2016 Crowne Plaza Shanghai, P. R. China sae.org/events/vept

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Shanghai international trade fair for automotive parts, equipment and service suppliers

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## SAE 2016

## Vehicle Electrification and Connected Vehicle Technology Forum

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#### HOTEL VENUE

#### Crowne Plaza Shanghai - Ballroom Jin Jue 2F

400 Panyu Road, Changning District, Shanghai, P.R. China

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## SAE 2016 Vehicle Electrification and Connected Vehicle Technology Forum

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## **HOST** INTRODUCTION

## **SAE International**

SAE International is a global technical association of more than 143,000 engineers andrelated technical experts in the aerospace, automotive and commercial-vehicle industries.

It was founded in 1905 with 30 engineers in New York and now spans more than 100 countries. SAE International is perhaps best known for its technical standards. More than 8,000 technical experts from around the world participate on 600 standards committees to develop a large base of standards and recommended practices that are used to support product design and development. Many government regulations and documents reference SAE International standards.

## Vehicle-Use Electric Motor, Electrical Appliances and Electronics Committee, China Association of Automobile Manufacturer

China Auto Association Electric Motor and Electric Appliance Committee for Vehicle (CAAMC) is one of the branches of CAAM. It was approved to be a community organization by China's Ministry of Civil Affairs when established in Changsha in 1992. CAAMC serves all automotive enterprises and entrepreneurs in China in electronics, electrical appliances and electrical motors industries.

## China National Automotive Industry International Corporation

China National Automotive Industry International Corporation (CNAICO) is a wholly-owned subsidiary of China National Machinery Industry Corporation

(SINOMACH), a large stateowned group. CNAICO specializes in areas such as international exhibitions, international trade, project contracting, and culture and media, as well as industrial investments related to these areas. CNAICO has held numerous automobile exhibitions that combine internationality and locality in over 30 large and medium-sized Chinese cities. The total exhibition area of exhibitions that CNAICO independently organizes or jointly do with partners each year exceeds 2 million m2.

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companies with 537,000,000 Euros in sales and over 1,800 active employees. The group has a global network of 28 subsidiaries, five branch offices, and 52 international sales partners. Thus, Messe Frankfurt is present in over 150 countries to their customers. At more than 30 locations in the world events "made by Messe Frankfurt" take place.







## **EVENT** OVERVIEW

WEDNESDAY, NOVEMBER 30		THURSDAY, DECEMBER 1	
8:45-9:00	Welcome and Introduction Speech	9:00-9:30	Welcome and Awards Ceremony
9:00-9:30	<b>Keynote</b> Driving into a Connected Future: Economic, Cultural and Societal Implications of Connected Cars		<b>Electric Drive Motors and Controls</b> Major manufacturers of electric motors and their components will provide insight of design characteristics and performance
<ul> <li>9:30-12:30</li> <li>9:30-12:30</li> <li>Autonomous Vehicles: from Sensors to ADAS</li> <li>Sensors used in automotive applications are the enablers for management of practically all systems that regulate and control all issues related to emissions, cabin climate control, driveability, safety, diagnosis and powertrain automation. Sensors are required to operate under a wide range and harsh conditions and fulfill requirements of durability, reliability, accuracy, cost and be versatile for many applications. As demand for increased control, monitoring and safety increase, the use of sensors to assure meeting those objectives grow and with it, implementation of advanced driver assistance systems (ADAS). The speakers will address how sensors make better vehicles possible, theor integration in the</li> </ul>	Autonomous Vehicles: from Sensors to ADAS Sensors used in automotive applications are the enablers for management of practically all systems that regulate and control all	9:30-11:00	of permanent magnet and induction motors used for electrified vehicles. The information of the presentations in this essions will address materials, design features, challenges and solutions, as well as control strategies that are used to improve efficiency and performance.
	11:30-13:00	Electric Drive Electronic Systems and Controls The session focuses on technological advances, news and applications of electronic systems and components related electric drive powertrains. Experts from diverse companies will be present to share information covering electric powertrain- related designs, features, analysis, features and development.	
	will address how sensors make better vehicles possible, theor integration in the		LUNCH
	related systems, leading to the features and operation of ADAS.	14:30-16:00	Power Electronics and Drive Systems
	LUNCH		Panel - Mobility in an Always Connected World
13:30-16:00	Autonomous Vehicles: from Sensors		Through the conference, speakers have
	to ADAS		discussed how the confluence of electric propulsion, advanced software control
16:30-17:00	<b>Battery Charging and Management</b> Lithium batteries are the norm and expected to be the major energy storage so urce for electric drive vehicles. The batteries' life, state of charge and safe operation are mainly a fuction of charging systems and strategies, as well as thermal contro, which are interrelated. These affect useful life, performance and safety. Various sytems and control strategies and analytical tols that aim to optimize functional performance and safety are addressed in this session.	16:30-17:30	discussed how the confluence of electric propulsion, advanced software control systems, and omnipresent connectivity is shaping the present and future of vehicle design, personal mobility, and public transportation. Over the next decade, cars will transition from acting as individual and independent transportation apparatuses to become nodes in a vast network of complex interactions between cars and passengers, cars and service networks, and cars and smart cities infrastructure. Panelist will debate topics that include the future of personal and public transportation, energy management, smart cities, and other key topics shaping the future of mobility in an always connected world.

The purpose of this event is to provide an open exchange of ideas. Remarks made by participants or members of the audience cannot be quoted or attributed to the individual or their company unless express permission has been granted by the individual and their company. Any record of remarks, discussion, or photographs may not be used unless express permission has been granted by the individual and their company.

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## **TECHNICAL** PROGRAM

## DAY ONE

	WELCOME AND INTRODUCTION SPEECH			
08:45	China National Automotive Industry International Corporation <b>Cuneyt L. Oge</b> , 2016 President - SAE International			
KEYNOTE				
09:00	Driving into a Connected Future: Economic, Cultural and Societal Implications of Connected Cars Joe Barkai, Industry Analyst & Consultant (See Speaker's Bio on Page 12)			
	ABSTRACT			
	The automotive industry, which has dictated its own future and stubbornly resisted outside innovation, is finding itself in the midst of a transformation that will redefine every aspect of the transportation industry.			
	The confluence of electric propulsion, software-controlled systems, and ubiquitous connectivity, engenders new opportunities for automakers, but also threatens traditional business and technology barriers, and enables aggressive new entrants to challenge the industry's status quo.			
	Connected and driverless cars will redefine the boundaries between cars and drivers. Understanding the profound economic, cultural and societal changes these will bring about is critical for the survival of automakers and their partners.			
AUTONOMOUS VEHICLES: FROM SENSORS TO ADAS				
09:30	Are You (Still) in The Driver's Seat? – How Automotive Players Prepare for			

#### Are You (Still) in The Driver's Seat? – How Automotive Players Prepare for Autonomous Driving, Connected and Electric Vehicles, and Transportation Services

Patrick Ayad, Partner and Head of Automotive - Hogan Lovells (See Speaker's Bio on Page 12)

#### ABSTRACT

Driverless vehicle technology is transforming the automotive industry like no other innovation in decades. Driverless technology – and the incremental steps along the way – will provide new opportunities for existing OEMs and supplies and options for a host of new entrants. The range of businesses impacted is massive. The balance of skills needed for the future of the auto industry will also shift as software and electronics become even more important. Major global trends effecting many industries but especially the auto industry will be briefly explored. The impact of driverless cars in various areas will be identified and then mapped to the businesses changes that will result. The areas examined will include how the cost structure will shift ownership of vehicles, the impact on safety, the result of constant connectivity and the marketing options it presents, solutions to urban congestion and the changes for infrastructure needs, and the opportunities driverless cars will generate for the aged and disabled. In each of these areas some of the major societal and business impacts will be identified. While there is debate on exactly when truly driverless cars will be generally available there is certainly no debate that that the massive infusion of new technology into the car is already changing the industry and all expect driverless cars to one day be a part of our future.

## **TECHNICAL** PROGRAM

10:00 Innovation for the Real World – Delphi Technology and Automated Driving Experiences From the "US Coast to Coast Automated Drive" to "Mobility on Demand" Serge Lambermont, Technical Director Automated Driving - Delphi (See Speaker's Bio on Page 13)

#### ABSTRACT

Delphi Technology and Automated Driving Experiences From the "US Coast to Coast Automated Drive" to "Mobility on Demand"

#### 11:00 **Tailor to Fit Electrification and Connected Energy Management** *Olivier Lobey*, Director of Powertrain Technology and Innovation - Continental Powertrain China (See Speaker's Bio on Page 13)

## 11:30 Dynamic Scheduling for the Autonomous Public Transportation Era

Yossi Aloni, Vice President Marketing and Sales - Optibus (See Speaker's Bio on Page 13)

#### ABSTRACT

Autonomous driving is here. A few more technical enhancements, a little push on regulation, some more emphasis on education. But it's coming, faster than we realize. However, with the introduction of this technology many tend to focus on the impact it will have on personal cars, where in fact public transportation may be the segment leading the way of adopting the new technology. The question this paper discuses is whether the implementation of autonomous driving in public transportation, mainly buses, will have a real substantial impact on passengers. Will taking the driver off the equation have any impact on how passengers use buses? And if so, what other technologies are needed to make it happen?

Autonomous driving can be just another technology in the evolution of transportation technologies, or it can play a key role in revolutionizing this market, by making a significant impact on how people use transportation and consume transportation services. To have such an impact, we need to add to the two existing pillars of autonomous driving and real time information, a third pillar of Dynamic Scheduling System. The DSS will feed off the real time and big data information, and adjust the buses schedules and routes in real time, so that public transportation actually works for the passenger. A pre-requisite for DSS is a real time scheduling technology, such as the one Optibus developed for the use of its OnTime™ solution. In 2-3 decades, the transportation world will operate completely different than today, and the DSS will be the core technology to enable it all.

## 12:00 Challenges In Designing High Reliability Communication Connectivity Solutions for Tomorrow's Automotive Architectures

Nick LIU, Sr. Director Engineering - TE Connectivity (See Speaker's Bio on Page 14)

#### ABSTRACT

Automotive OEMs are adding bandwidth-hungry features to new vehicles, such as hi def cameras, radar and LiDAR. To deliver ADAS, multiple signal inputs must be rapidly and accurately processed, over high speed, low loss, low error rate connectivity systems. The data architectures are evolving quickly from lower speed busses to Gbit Ethernet and beyond. Adapting a commercial or enterprise communications solution to the harsh operating environment of automotive is no easy feat. This presentation focuses on the challenges in designing high reliability communication connectivity solutions for tomorrow's automotive architectures.

## 13:30 One of the First Steps to Autonomous Vehicles is What is Generally Called the Connected Car

**Shuchang HAN**, Marketing Industry Manager of Automotive and Energy Solutions - Keysight (See Speaker's Bio on Page 14)

#### ABSTRACT

The automotive industry is in the midst of a revolution that is gathering momentum as vehicles become the fusion point of innovative wireless and electronic technologies. Fundamental market forces such as safety, environment, security, and connectivity are accelerating the adoption of new technologies as never before. This puts huge demands on OEMs to operators - and manufacturers to chipset suppliers - to ensure reliability and quality. In order to meet the lofty goals of zero fatalities (or even zero accidents), enabling greener transport systems, and satisfying consumer demand for ubiquitous connectivity, the industry must continue to evolve and adapt quickly. The path to highly or fully autonomous vehicles will be challenging due to mission critical safety requirements of automotive systems, and the need for everything to reliably work in spite of interchangeable equipment from multiple vendors.

This paper will give an overview of the Autonomous Driving Cars: what it is, the design challenges facing engineers developing the Autonomous Driving Cars of the future, and how Keysight solutions can help address these challenges in an ever changing environment.

#### 14:00 The Blue Box: A Sandbox for Automated Driving Software Development

Shuai BAI, Senior Application Engineer - NXP (See Speaker's Bio on Page 14)

#### ABSTRACT

Advanced driver assist systems (ADAS) and autonomous driving (AD) require a combination of high performance processing and functional safety. There is currently no single SoC capable of meeting AD performance requirements with the intrinsic safety capabilities required for expected regulatory requirements.

To facilitate development and testing of AD sensor inputs, vehicle control algorithms, and functional safety fault detection and response mechanisms, NXP has developed prototype ECU hardware based on a high performance 'Number Cruncher' and an ISO 26262 'Safety Controller', which we call the Blue Box. This session covers the Blue Box hardware and software features, and intended usage.

#### 14:30 Securing the Connected Car Via OTA Updates

**Richard Kinder**, Vice President of Technology and New Business - HARMAN (See Speaker's Bio on Page 15)

#### ABSTRACT

Connectivity is an expectation among people from all over the world. The most prominent to ramp up connected capabilities are cars, which have also sprung well-founded security concerns. To assuage consumers' worries, auto manufacturers are using over-the-air (OTA) updates.

In this session, Richard Kinder will speak to how OTA updates:

- Provide future-proof security coverage
- Decrease costs by eliminating unnecessary repairs
- Increase customer loyalty

In addition to the above, Richard will share case study examples of how OTA updates are revolutionizing the connected car industry one car at a time.

## TECHNICAL PROGRAM

#### 15:00 Deployment of Model-based development for ADAS system

**Peter Mas**, Director at Siemens PL Engineering Services - Siemens (See Speaker's Bio on Page 15)

#### ABSTRACT

- Overview of Simulation and Test Solution of Siemens PL software
- Leverage plant models for ADAS controls design
- Advanced controls techniques to develop ADAS system
- Model-based approach to front-based control design&validation
- Case Studies for ADAS development

#### 15:30 Driver Monitoring System Using 3D Imaging (ToF) Technology for ADAS

Martin Gotschlich, Head of Product Group 3D Imaging - Infineon (See Speaker's Bio on Page 15)

#### ABSTRACT

Until fully autonomous driving is reality there will be challenging phases in the development of the man-machine-interface between the driver and the vehicle. Today, the driver has full control over the car. In a next step there is the need to transfer the control between driver and car dependent on the road and traffic conditions. This phase is called Level 3 or Highly Automated Driving. For handing over the control from the car to the human driver the vehicle must understand the condition and readiness of the driver before taking off its virtual hands from the steering wheel. 3D cameras based on the Time-of-Flight (ToF) principle deliver robust data to assess the driver's condition.

## **BATTERY CHARGING AND MANAGEMENT**

## 16:30 Fast Running 3D and 1D Battery Models for Long Duration Duty Cycle Simulation

Heinz Friz, Managing Director of Asia Technical Services - Exa (See Speaker's Bio on Page 15)

#### ABSTRACT

Battery modules are added to vehicles to improve efficiency and reduce or eliminate tailpipe emissions. These batteries are usually assembled into a battery pack which serves multiple purposes. One of the purposes of the battery pack is to manage the thermal environment of the battery modules. Simulation is a critical part in designing a battery pack. However, one significant challenge in simulating a pack is the difference in timescales between the electrical and thermal behaviors. When simulating a battery pack, a typical goal is to simulate several hours or more of operation. In this simulation, the electrical duty cycle typically includes electrical inputs which vary with timescales of 100 msec. The thermal duty cycle includes interactions with the rest of the vehicle and with the external environment. The changes in the inputs have time scales from minutes to hours. Simulating a full 3D model of a pack with its complex internal geometry and complex test conditions is difficult to accomplish with desired turnaround times. One way to reduce turn-around-time is to substitute reduced, or approximate models in place of the full 3D model. These reduced order models perform faster than full 3D models because they focus on reproducing only essential aspects of the thermal behavior. This allows dramatic simplification of the models and makes very long running 3D and 1D simulations possible. In a case study, these reduced order models are used to replace parts of pack in a 3D simulation. A process for converting a 3D model into a system model is illustrated. To summarize the benefits of this approach, the relative accuracy and run times are compared.



## WORLD CONGRESS EXPERIENCE

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## **TECHNICAL** PROGRAM

## DAY TWO

	WELCOME SPEECH AND AWARD CEREMONY		
09:00	China National Automotive Industry International Corporation Jianhua SHI, Vice Secretary-General - China Association of Automobile Manufactures Cuneyt L. Oge, 2016 President - SAE International		
ELECTRIC DRIVE MOTORS AND CONTROLS			
09:30	<b>The Design of PMSM for Vehicle</b> <i>Hongfei CAO</i> , Associate Director of R & D Department of Huayu E-drive - Huayu Automotive Electric System (See Speaker's Bio on Page 16)		
10:00	The Advancement of the Latest Electric Motor Technology William CAI, Founder & CTO - Jing-Jin Electric (See Speaker's Bio on Page 16)		
10:30	<b>Power Dissipating Torque Controller for Electric Motors</b> <i>Lars Johansson</i> , Senior Manager, Electric Drives - Volvo Cars Group China (See Speaker's Bio on Page 16)		
	ABSTRACT		
	In most use cases, optimum system efficiency is a key parameter for electric drive control systems to optimize electric range as well as reduce losses and thus waste heat generation.		
	This presentation will focus on certain use cases where the control space can be enhanced by deliberately increasing the system losses in a controlled way, herein called power dissipation. Power dissipation can be a very powerful control method in special use cases. This presentation will focus on a speed controller used for hybrid gearbox speed synchronization. By applying power dissipation, the torque range for the speed control can be considerably increased in special cases. As a result, it will lead to shorter synchronization times and thus shorter gearshift times.		
	In addition, other areas where Power dissipation can be an efficient tool within motor control will be briefly covered.		
ELECTRIC DRIVE ELECTRONIC SYSTEMS AND CONTROLS			
11:30	<b>The Development Trends of Electric Drive and Systems of EV</b> <i>Haifeng LU</i> , Associate Professor in Department of Electrical Engineering and Applied Electronic Technology - Tsinghua University (See Speaker's Bio on Page 17)		
12:00	A New Hybrid Boosting System for Downsized Internal Combustion Engines Isak Loefgren, CEO - KASI Tech (See Speaker's Bio on Page 17)		
	ABSTRACT		
	The presentation introduces a new Hybrid Turbocharging system including electric drive for internal combustion engines that supports downsizing to improve performance and reduce emissions. In a compact package, the system combines mild hybrid functionalities; stop/start, kinetic energy recovery and electric drive with electric turbocharging and exhaust gas waste heat energy recovery. System operation and performance will be presented as it relates to a vehicle, together with new ways of controlling the engine throttle and wastegate with this new system approach.		

#### 12:30 E-System Integration Test Beds - the Advanced Tool in R&D and Calibration

*Volker Niemeyer*, Global Business Unit Manager for Electrification & Racing Test Systems - AVL (See Speaker's Bio on Page 17)

#### ABSTRACT

Front loading in R&D is often limited to simulation with little hardware included. The E-Integration Test System offers a tool that allows at an early stage at the development of electrified powertrains the evaluation and testing of a mixture from real hardware and emulated hardware. Such E-Integration Test System speeds up the functional development and validation of integrated (sub) systems before those find their way into the first prototypes. Besides robustness tests for SW & HW it allows fault injections and pre-calibrations. At a later state the E-Integration Test System can be utilised to analyse field returns for closing the loop to previous development.

### **POWER ELECTRONICS AND DRIVE SYSTEMS**

#### 14:30 Challenges for 48V Mild Hybridization

**Andreas Gross**, Senior Vice President Component / Vehicle E-Traction Division - IAV (See Speaker's Bio on Page 18)

#### ABSTRACT

48V mild hybridization will become increasing meaningful for solving the 2020 exhaust gas emission legislation in different markets, and thus an increasing number of applications can be expected. Apart from the decision of which architecture would be the best approach; cost, efficiency, NVH requirements etc. must also be considered. The presentation will in addition highlight technical challenges such as efficiency improvement during partial-load operation.

#### 15:00 Innovation for the Real World - Delphi's 48 Volt System Overview

Xiangdong XU, Engineering Director Asia Pacific - Delphi (See Speaker's Bio on Page 18)

#### 15:30 How Autonomous Driving Applications Alter the Designs of Electrified Powertrains Yu YANG, Business Development Partner - Punch Powertrain (See Speaker's Bio on Page 18)

#### ABSTRACT

From a supplier's point of view, we summarize the specific requirements in the autonomous driving scenario, and accordingly, we describe a torque vectoring electric powertrain solution. We also explain how less costly electrified powertrains can contribute to the function and safety of autonomous driving. Those powertrains are full EV as well as various types of PHEV solutions

Within this future context, in this presentation we show technical spectrum from PHEV to EV powertrain solutions dedicated to different applications. The HS2 PHEV powertrain integrates a CVT transmission and a traction motor with P3 configuration. By intelligently switching between four working modes, 70% fuel saving can be achieved with charge depletion mode in a NEDC cycle.

## **PANEL - MOBILITY IN AN ALWAYS CONNECTED WORLD**

#### 16:30 **MODERATOR:**

Joe Barkai, Industry Analyst & Consultant (See Speaker's Bio on Page 12)

#### PANELISTS:

*Aymeric Rousseaui*, Manager of the Systems Modeling and Control Section - Argonne National Laboratory (See Speaker's Bio on Page 19)

Yossi Aloni, Vice President Marketing and Sales - Optibus (See Speaker's Bio on Page 13) Xi ZHANG, Research Associate and Doctoral Advisor in the School of Mechanical Engineering -Shanghai Jiaotong University (See Speaker's Bio on Page 19)

Alan Amici, Vice President Engineering Automotive Americas - TE (See Speaker's Bio on Page 19)

### DAY ONE



#### Joe Barkai

Industry Analyst & Consultant

Joe Barkai is an industry analyst, consultant, and the author of the book The Outcome Economy: How the Industrial Internet of Things is Transforming every business.

Active in the automotive

and aviation space since 1987, he held a multitude of consulting roles ranging from technology implementation and product development processes to business consulting.

As Vice President of Research at IDC, a leading global market research firm, Joe led global research for over 8 years across a broad spectrum of industries, including automotive, industrial equipment, aerospace,

construction, medical devices and high-tech. His automotive and heavy equipment clients include DaimlerChrysler, Ford, General Motors, John Deere, Mitsubishi, NACCO, Nissan, Scania, Toyota, and Volvo. He appeared on CNN, and was quoted in the Wall Street Journal, The New York Times, CIO Magazine, and numerous industry publications.

Joe's focus is on researching, forecasting, and the strategic application of technology innovation and emerging business models in connected cars, smart transportation, and smart cities. He works with technology vendors, auto manufacturers and suppliers to guide investments in vehicle telematics, infotainment and self-driving technologies, and formulate the corresponding business development strategies.



### **Patrick Ayad**

Partner and Head of Automotive Hogan Lovells

Patrick Ayad runs your business from a legal perspective. He is a global leading practitioner on international contract drafting, procurement and distribution, as well as an

experienced regulatory advisor. Within more than 15 years he has gained considerable knowledge on commercial and regulatory matters, advising global companies particularly in the industrial and consumer goods industry sectors.

Patrick drafts, reviews and negotiates your commercial contracts, and, if needed, defends them against your business partners. He is highly renowned in the areas of international contract drafting, procurement and distribution, as well as regulatory issues such as environment and international trade. He is a leading individual on commercial contracts, contract drafting and distribution law in all relevant directories (Chambers, JUVE, kanzleimonitor.de). He also frequently advises global companies in transactions,

speaks at seminars, and publishes regularly.

Patrick heads the Commercial practice area in Germany and is on the leadership team of the global Commercial practice area. He also has considerable industry knowledge, particularly in the industrial and consumer sectors. He heads the global Industry Sector Group Automotive at Hogan Lovells. According to recent sources, '...he really gets to the bottom of what we need as clients, and understands the commercial situation. He is also very amicable and responsive.' (Chambers Europe 2015). He also has an 'outstanding reputation in the automotive industry' (JUVE 2015/2016).

Patrick studied law at the University of Munich (Dipl. jur, Dr. jur.) and University of Oxford (M. Jur.). He is a member of the German society for distribution law (Deutsche Gesellschaft für Vertriebsrecht e.V. - DGVR).



#### Serge Lambermont

Technical Director Automated Driving Delphi

Serge Lambermont is Technical Director Automated Driving at Delphi.

He started his career in Europe as an electronic embedded systems

engineer supporting automotive OEMs in France and Germany.

In 1997 he moved to Asia/Pacific where he served a variety of global engineering management roles for Delphi including Asia/Pacific Engineering Director Power Electronics, Asia/Pacific Engineering Director Powertrain Electronics in Singapore, and Japan Engineering Director Electronics and Safety in Tokyo.

In his current role he is responsible for Delphi's global automated driving technologies and activities. He spends his time working with global teams finding and defining opportunities to develop new features and innovation for future mobility and the future mobility eco-system. Most recently, he led Delphi's global development of urban self-driving vehicle development platforms, and the 3400 miles San Francisco to New York City coast-to-coast automated drive.

During his career, he has been deeply involved in technology development across regions with customers in the US, Europe and Asia/Pacific. He is a technical leader with in-depth embedded electronics controls, vehicle systems integration, and high-end automotive (US/EU/Japan) quality experience.

In his free time he enjoys cycling and hiking with his family; as well as classical music, art and architecture.

He is based in the Delphi Labs at Silicon Valley office in Mountain View California, and has a bachelor's degree in applied Physics from Hogeschool Eindhoven the Netherlands and completed the Michigan Ross School of Business Senior Executive Program in Hong Kong.



#### **Olivier Lobey**

Director of Powertrain Technology and Innovation Continental Powertrain China

Since August, 2015, Olivier Lobey has been in charge of the newly created department of Technology and Innovation for Continental Powertrain China, with the aim to

closely identify the needs of the customers in China, and to test specific solutions for China.

Over the past 16 years, Olivier has developed 8 international projects, at management, business and

technical levels. For 3 of those endeavors, he launched 3 companies to achieve maximum market focus. For the 5 others ventures, he also led engineering teams through new set-ups for increased efficiency.

Oliver Lobey holds Master of Science Degree from France IFP School, and Master of Science Degree from ÉCOLE NATIONALE SUPÉRIEURE DES MINES DE SAINT-ÉTIENNE



#### Yossi Aloni

Vice President Marketing and Sales Optibus

Yossi is a marketing and sales leader with extensive experience guiding small and large companies to address market needs using technology innovation, by analyzing trends

and customers' needs. Yossi has over 25 years of experience, with proven success across five continents,

generating results and change in multiple domains, like: systems management, medical devices, and now public transportation. Yossi now leads the marketing and sales for Optibus, a young innovative company that addresses the need of passengers and operators for flexible public transportation. Yossi holds an engineering degree in Computer Science, a BA in business, and an Executive MBA from San Diego State University.



#### Nick LIU

Sr. Director Engineering TE Connectivity

Dr. Nick Liu has over 25 year automotive industry experience in U.S. & China with 4 patents granted and over 40 technical papers published. At TE, Dr. Liu has been responsible for overall engineering including product development, manufacturing development, program management & advanced engineering for over \$1 billion business in China.



#### Shuchang HAN

Marketing Industry Manager of Automotive and Energy Solutions Keysight

Shuchang Han is responsible for promoting Automotive & Energy solutions in Great China. Listen to customers, sharp insight into the trends of Automotive and Energy

industry, deliver perfect solutions what customers need, lead Automotive industry change are Keysight responsibility.

In the past 10 years, Shuchang.Han has served for the

military research institute, and multination companies, engaged in power network of aircraft, consumer electronics, special lighting system design and development, provided technical support for Energy solutions. Contacted with a wide range of customers, in-depth understanding the challenge and customer needs in various industries.

Shuchang.Han received a bachelor of science degree in electrical automation from Nanjing University of Aeronautics & Astronautics.



#### Shuai BAI

Senior Application Engineer NXP

Dr. Bai Shuai graduated from University of Chinese Academy of Sciences in 2015. In his Ph.D. study, he engaged in payload development of satelliteto-ground quantum

communication systems and his research focused on the technology of spatial acquisition, tracking and pointing. He has published two SCI papers as the lead author in Optics Letters and Optics Express, two of the top optical journals, and another paper in Chinese core journals. Currently, he is the senior application engineer of the department of automotive electronics products of microcontrollers and microprocessors in NXP Semiconductors where he focuses on the development of visual ADAS applications, including the smart front view system, image signal processing and embedded vision research.



#### **Richard Kinder**

Vice President of Technology and New Business HARMAN

Richard Kinder is HARMAN's vice president of Technology and New Business, where he leads the company's technical activities and new business engagements in the

automotive industry. He joined HARMAN through the acquisition of Redbend, where for 10 years he drove the technical activities for the mobile and automotive

industries. He has been involved in the software industry since the age of fourteen. While in school, he coded everything from home computer games to visualization software in Java. After university he joined Sun Microsystems becoming an early member of JavaSoft. He defined Symbian's Java strategy and built Palm's wireless business in Europe. He holds a B.Sc (Hons) in Chemistry from Imperial College of Science Technology and Medicine.



#### Peter Mas

Director at Siemens PL Engineering Services Siemens

1993 : graduated at university of Leuven in Belgium as electro-mechanical engineer1998 : researcher at the university of Leuven in Belgium in the domain of NVH1998-2008 : Technical team leader at LMS Engineering services (Belgium) in the domain of vehicle performance attribute engineering

2009-today : Director at Siemens PL Engineering Services (France) in the domain of Model Based Systems Engineering



#### **Martin Gotschlich**

Head of Product Group 3D Imaging Infineon

After receiving his diploma in communications engineering from the Technical University in Vienna, Martin continued to work on research projects in the field of digital signal processing. In 1999 he

joined Siemens Semiconductors in Munich which was converted to Infineon Technologies in the same year.

During his career Martin was working in different positions, mainly in Product Marketing and Application Engineering serving products in different market segments. He is holding five international patents. During recent years Martin is heading Infineon's 3D-image sensor business. Based on the time-offlight principle these sensors are an innovative key component in all applications which are dealing with objects and motion in 3D-space.



#### Heinz Friz

Managing Director of Asia Technical Services Exa

Mr. Heinz Friz is the Managing Director Asia Services at Exa. He is a graduate of the University of Stuttgart in Aerospace and Aeronautics and has 30 years of experience in

numerical simulation in the areas of fluid dynamics and thermodynamics. He has worked for more than

20 years with the auto industry providing consulting and services to leading automotive companies and suppliers like Mercedes Benz, Porsche, BMW, Nissan, HMC, Toyota, Mahle, Behr, and Denso in a wide range of CFD related applications. He had a leading role in building Exa's business in Japan and Korea since 2003 and has been involved in establishing and growing the business in China since 2009.

### **DAY TWO**



#### Hongfei CAO

Associate Director of R & D Department of Huayu E-drive Huayu Automotive Electric System

Cao received a bachelor degree from Jiangsu University in 2003 and joined the Micro Motor Research Center (Linquan Motor) of China Aerospace Science & Industry Corp in

the same year. During his 5 years working there, he has completed the development of 30 items of military electric motor of different types, engaged in the "12th Five-Year Pre-research" project on a major product and won the second prize of the National Defense Award for Science and Technology Progress once. In 2009, he was assigned as the main technical leader by Guizhou Aerospace to Shanghai where he involved in the development of main drive motor of NEV for ROEWE. He was later awarded the first prize of SAIC Award for Science and Technology Progress for the achievements in his development in 2012Sop. Since working in NEV industry in 2009, he has successfully applied for 9 patents with himself being the first inventor for 6 of them and gained rich experience in the development of the flat copper wire armature manufacturing process of high reluctance torque permanent magnet motor with the technical team he led.



### William CAI

Founder & CTO Jing-Jin Electric

William has presided over and engaged in more than 10 projects under the National 863 Program and the NEV Innovative Program as well as over 20 scientific research and

industrialization projects of provincial and ministerial level. He holds over 10 patents of invention with Dr. Cai Wei being the first inventor and over 10 patents of other types. He co-founded Jing-Jin Electric and filled domestic gaps in such technology areas as electric transmission dual motor system and direct oil cooling electric drive system, etc.

In 2013, he won the project of the mass production of drive motor of plug-in hybrid electric vehicle, one of the three major vehicles in America. This successful bid is a sign that China's core technology of automotive powertrain with its key components is stepping towards the world. His corporation accounted for one third of the market of the driving motor of new energy commercial vehicle and is a manufacturer of mass production of driving motor for several top ten vehicle enterprises in China.



#### Lars Johansson

Senior Manager, Electric Drives Volvo Cars Group China

Lars Johansson is Senior Manager at Volvo Cars China, responsible for Electric Propulsion Systems design team. Lars graduated from Chalmers Technical University in Sweden with a

Master's degree within Electrical Engineering.

Lars has a long experience within powertrain engineering, and especially within powertrain controls. Since 10 years' time Lars has fully focused on electric hybrid powertrains and its' control methods and algorithms. Lars has experience from both GM Powertrain and Volvo Cars hybrid controls.



#### Haifeng LU

Associate Professor in Department of Electrical Engineering and Applied Electronic Technology Tsinghua University

Mr. LU has been engaged in the research in power electronic technology, electric motor and control system with a particular focus on the

high performance electric drive system for electric vehicle. He has presided over 2 NSFC projects, 1 branch project under the National 863 Program, 1 independent scientific research project and several projects entrusted by enterprise. Currently, he holds 2 national invention patents which have been authorized. In recent years, some innovative results obtained by him and his cooperators in electric vehicle's electric drive technology such as pulse width modulation and the accurate orientation of vector control have been applied in real system and through which some actual problems have been solved and the industrialization of electric vehicles has also been promoted. He and his partners won the second prize of National Scientific and Technological Progress Award.



#### Isak Loefgren

CEO KASI Tech

Isak is the CEO and CTO of KASI Technologies since 2007, responsible for Product Development on drive-train and hybrid products for automotive and racing vehicles.

He has worked in Volvo Car Corporation during 2006-2007 and participate the design of Concept vehicle (later Xc60).

He is also the Sergeant Instructor Technical of Marine Amphibious Battalion, AMF1 (Vaxholm, Sweden), responsible for Sergeant Instructor Technical, tactical & navigational training on maritime vessels.

He has the master degree of Applied Physics and Electrical Engineering – International, specialization in Mechatronics, LiTH, Linköping SWEDEN.



#### **Volker Niemeyer**

Global Business Unit Manager for Electrification & Racing Test Systems AVL

Volker Niemeyer currently holds the position of a Global Business Unit Manager for Electrification & Racing Test Systems at AVL List GmbH, located in Graz/Austria.

In his position, Volker reports to the Executive Vice President for Instrumentation and Test Systems. His global business unit includes segments for product development/management, sales support, operations and engineering services for which he has global P/L responsibility. The offered test systems cover the requirements of the automotive industry for component and system integration testing of electrified power trains for ground transportation vehicles and any kind of race machine.

Before joining AVL List GmbH in September 2010, Volker worked for 26 years as a manager for Toyota Motorsport GmbH/Germany on the Rallye-, Le Mansand Formular-1 projects. Recently responsible for the engine & power train testing and related facilities.



#### Andreas Gross

Senior Vice President Component / Vehicle E-Traction Division IAV

Electronic Devices and Microsystems Technology since 2003 at IAV 2007 Teamleader - drivetrain integration 2010 Senior Project Manager - HV-Battery-Systems 2015 Senior Vice President - Component / Vehicle E-Traction Division



#### **Xiangdong XU**

Engineering Director, Asia Pacific Delphi

Mr. Xiangdong Xu is Engineering Director, Asia Pacific, Delphi Powertrain Systems.

Xiangdong started his career with Delphi (then Delco Electronics) in Beijing

in 1995 as a system application engineer in Beijing. Over the next several years, he would hold a number of roles that included engineering manager, general manager of Delphi Beijing Technology Development Company.

Xiangdong moved to Shanghai in 2003 to participate in setting up of Delphi China Technical Center. During that time, his roles included powertrain electronics engineering manager, senior engineering manager for powertrain controls and body electronics, engineering manager for powertrain electronics and forward engine management systems and chief engineer for powertrain controllers, and an one-year assignment in Delphi's technical center in Kokomo, Indiana, USA, as navigation radios technical manager. Xiangdong was promoted to the position of China General Manager, Gas Engine Management Systems of Delphi Powertrain Systems Division in 2011. In Feb 2014, Xiangdong was appointed Engineering Director, Asia Pacific, Delphi Powertrain Systems. His responsibility thus extends to both Gas and Diesel engine management systems.

Xiangdong began his automotive career in 1992 as research assistant in Tsinghua Automotive Engineering Research Institute. He has participated in several automotive electronics related research projects which are part of National Science & Technology Committee 8th 5-year planning projects. Since joined Delphi, Xiangdong has primarily focused on hardware and software engineering on powertrain electronics. He also has engineering experiences on chassis control, body electronics and infotainment systems, as well as experience in plant operation and sales management.

Xiangdong has a bachelor's degree and master's degree in internal combustion engine from China's Tsinghua University.



Punch Powertrain

#### Yu YANG

Business Development Partner Punch Powertrain

Professional career 2005-2010 Doctorate researcher @ IMEC

2010-2012 Project manager @ Bekaert

2013-2015 Project leader @

2015-now Business development partner @ Punch Powertrain

Current position Since 2015 Business Development

Partner

Marketing and new business development with a focus on China and emerging markets

Additional information 2002-2005 MEng, Inst. of Micro-electronics @ Tsinghua Univ. (Beijing), on advanced packaging for micro-chips

2005-2010 PhD, MTM @ K.U.Leuven, on 3D integration of micro-chips



#### **Aymeric Rousseau**

Manager of the Systems Modeling and Control Section Argonne National Laboratory

Aymeric Rousseau is the Manager of the Systems Modeling and Control Section at Argonne National Laboratory. He received his engineering diploma at the Industrial System

Engineering School in La Rochelle, France in 1997. After working for PSA Peugeot Citroen for several years in

the Hybrid Electric Vehicle research department, he joined Argonne National Laboratory in 1999 where he is now responsible of the development of tools and processes designed to quickly and efficiently evaluate the impact of advanced vehicle and transportation technologies from a mobility and energy point of view including Autonomie (vehicle system simulation) and POLARIS (large-scale transportation system simulation).



#### Xi ZHANG

Research Associate and Doctoral Advisor in the School of Mechanical Engineering Shanghai Jiao Tong University

Zhang Xi, male, holds a Ph.D in Engineering. He is a research associate and doctoral advisor in the School of Mechanical Engineering at Shanghai Jiao Tong University who

focuses mainly on the drive control of EV, wireless charging, intelligent technology, etc. He has published more than 50 papers, among which over 40 of them have been included in SCI/EI. He has also published 3 books in both Chinese and English. He holds over 10 licensed patents of invention and has presided over altogether 10 national, ministerial and provincial-level projects including the general project of the National Natural Science Foundation of China and the national key project of international cooperation. The funding for the projects he has presided over and involved in totaled more than RMB 100 million. He has won the second prize of Shanghai Science and Technology Progress Award, Shanghai Talent Award as well as other honors and awards.



#### Alan Amici

VP Engineering Automotive Americas TE Connectivity

Alan Amici was appointed VP Engineering – Automotive Americas for TE Connectivity in April of 2015.

In this role, Alan is responsible for product

and process development of TE's automotive portfolio of components and connection systems. Alan is also the technical manager for TE's partnership with Andretti Technologies and is active in emerging talent acquisition and development as a University Relations Executive Champion.

Alan joined TE Connectivity after a 30-year career with Chrysler where he held a variety of positions in

engineering, manufacturing and service. Significant elements of his professional background at Chrysler include Head of Electrical and Electronics (Turin, Italy and Auburn Hills, MI), Head of Global Uconnect and Global Service and Parts (Stuttgart, Germany).

Alan is the holder of two patents, is the recipient of the Walter P. Chrysler Technology Award and is a member of the SAE Convergence Technical Council where he served as the Technical Program Chair for Convergence.

Alan earned his Masters degree in Business Administration, Masters of Science in Electrical Engineering and Bachelor of Science in Electrical Engineering from the University of Michigan and is a graduate of the Chrysler Institute of Engineering.

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#### Ε

#### Exa (Shanghai) Simulation Software Technology Co .,Ltd.

**Address:** Room 837, Yueda 889 Center, 1111 Changshou Road, Jingan District, Shanghai, PRC



#### www.exa.com

Exa (NASDAQ:EXA) (www.exa.com) Corporation's visualization and simulation software helps designers and engineers produce better vehicles and equipment. As a design evolves, Exa accurately predicts the performance of that design while providing actionable insight to optimize the performance of the product. With Exa, the need for costly physical prototypes and expensive late-stage changes is reduced. Now, designers and engineers are freed from the risk of producing compromised products that do not meet market and regulatory requirements. Some of the most successful product companies in the world use Exa, including BMW, Delphi, Denso, Fiat Chrysler, Ford, Hino, Honda, Hyundai, Jaguar Land Rover, Kenworth, Komatsu, MAN, Nissan, Peterbilt, Peugeot, Renault, Scania, Toyota, Volkswagen and Volvo Trucks.

#### Η

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#### Κ

#### **Keysight Technologies, Inc**

Address: 4th floor, 3 Wangjingbei Road, Chaoyang District, Beijing, PRC



#### www.keysight.com

On Sept. 19, 2013, Agilent Technologies announced plans to separate into two publicly traded companies through a tax-free spinoff of its electronic measurement business. The new company, Keysight Technologies, began operating as a wholly owned subsidiary of Agilent on Aug. 1, 2014 with a full separation anticipated in November 3, 2014. Keysight was trade on the NYSE under the symbol KEYS.

Keysight is a global electronic measurement technology

and market leader helping to transform its customers' measurement experience through innovation in wireless, modular, and software solutions. Keysight provides electronic measurement instruments and systems and related software, software design tools and services used in the design, development, manufacture, installation, deployment and operation of electronic equipment. Information about Keysight is available at www.keysight.com

## **EXHIBITOR** PROFILES

#### Ν

#### **NXP Semiconductors**

Address: 21th floor, BM PLAZA, 100 Yutong Road, Jingan District, Shanghai, PRC

#### www.nxp.com

NXP Semiconductors N.V. (NASDAQ: NXPI) enables secure connections and infrastructure for a smarter world, advancing solutions that make lives easier, better and safer. As the world leader in secure connectivity solutions for embedded applications, NXP is driving innovation in the secure connected vehicle, end-to-end security & privacy and smart connected solutions markets. Built on more than 60 years of combined experience and expertise, the company has 45,000 employees in more than 35 countries.



#### S

#### **Siemens PLM Software**

Address: 7 Central South Road, Chaoyang District, Beijing, PRC



#### www.siemens.com/plm

Siemens PLM Software, a business unit of the Siemens Digital Factory Division, is a leading global provider of product lifecycle management (PLM) and manufacturing operations management (MOM) software, systems and services with over 15 million licensed seats and more than 140,000 customers worldwide. Headquartered in Plano, Texas, Siemens PLM Software works collaboratively with its customers to provide industry software solutions that help companies everywhere achieve a sustainable competitive advantage by making real the innovations that matter. For more information on Siemens PLM Software products and services.

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The collegiate design competition

Formula SAE begins. The first volume of Aerospace Engineering

SAE's first World

1936

SAE's first

National Aircraft

Meeting is held.

Congress held

1947

Magazine is published.

1981

1976

SAE officially

Collegiate Design

merge their standards work with SAE. SAE publishes first aeronautical standard

Admits members of the American Society of Aeronautical Engineers, the Society of Tractor Engineers, National Association of Engine and Boat Manufacturers, the National Gas Engine Association, and the American Society of Agricultural Engineers. The National Gas Engine Association and the National Association of Engine and Boat Manufacturers

launches its

Series

SAE creates the SAE Foundation to fund and promote

and science

1986

1983

SAE begins its

Professional Development

engineers

.

Program to educate

and certify mobility

education in math

SAE officially changes its name from Society of Automotive Engineers to SAE International to reflect the increasingly international scope of its activities and membership

SAE recognizes

its second organizational affiliate, SAE India.

2002

1990

Motion.

SAE establishes the Performance

Review Institute, a

nonprofit affiliate, to develop performance

standards and certify

systems accordingly.

first international affiliation with SAE

SAE forms its

Brazil

2006

2005

SAE foundation launches A World in

SAE celebrates its 100 year anniversary with SAE 100. SAE establishes a representative office in

...

SAE International Purchase of ARINC Industry Activities and Effective Training Inc

2014

2012 SAE establishes a subsidiary company in China: SAE Industrial Consulting Services (Shanghai) Co., Ltd. SAE International acquires Tech Briefs



Elmer Sperry coins the word automotive; SAE changes its name to Society of Automotive Engineers in February. SAE's Journal is founded.

SAE publishes (Automobile)

1912

1905

SAE International found in New York City,

1917

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1916

First Vice President: Henry Ford