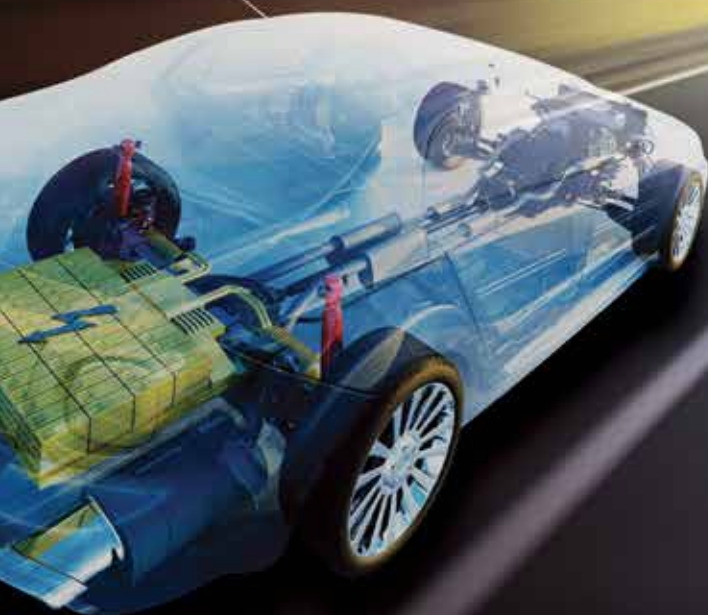


**SAE 2015  
Vehicle Electrification  
and Connected Vehicle  
Technology Forum**

汽车电气化与智能化技术论坛


December 3-4, 2015  
Crowne Plaza Shanghai,  
Shanghai, China

[www.sae.org/events/vept](http://www.sae.org/events/vept)



# INSPIRING BUILDING ADVANCING

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INDUSTRY—ALWAYS IN MOTION  
AND LOOKING TOWARDS  
TOMORROW.



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Since 1905, SAE has connected automotive, aerospace, and commercial vehicle engineers to each other and the technical resources needed to foster a lifetime of learning, solutions to improved vehicle technology, and the advancement of the mobility industry.

SAE International—whose first vice president was an up-and-coming engineering talent by the name of Henry Ford and included early supporters like Orville Wright—was based on providing a platform for collaborative and informed dialog and the impetus of its earliest standardization efforts. Today, the sharing of information remains at its core, with SAE being acknowledged globally as the ultimate knowledge source for mobility engineering.

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# WHAT'S INSIDE

- 03 Event Overview
- 04 Hosts Introduction
- 05 Hotel Floor Plan
- 06 General Information
- 07 Event Program
- 09 Speakers' Bio & Abstract
- 20 Sponsor
- 20 Exhibitor Profile

## **EMERGENCY PROCEDURES DURING THE SAE 2015 VEHICLE ELECTRIFICATION AND CONNECTED VEHICLE TECHNOLOGY FORUM**

During the SAE 2015 Vehicle Electrification and Connected Vehicle Technology Forum attendees are to follow the established emergency guidelines of the facility where the emergency occurs. **Based on the location of the incident, report emergencies to the nearest venue representative and/or security personnel if available, or report to the SAE operations office located in the Registration Center.**

Should a catastrophic event occur, attendees should follow the safety and security instructions issued by the facility at the time of the event. This includes listening for instructions provided through the public address system and following posted evacuation routes if required.

In the event of an emergency or a major disruption to the schedule of events at the SAE 2015 Vehicle Electrification and Connected Vehicle Technology Forum, attendees and exhibitors may call this number to receive further information about the resumption of this event. Updates will also be provided via the SAE website at <http://www.sae.org>

### **SAE EMERGENCY HOTLINE**

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# SAE 2016 WORLD CONGRESS & EXHIBITION

POWERING  
POSSIBILITIES

April 12-14, 2016  
Cobo Center  
Detroit, MI, USA



# EVENT OVERVIEW

TIME	THURSDAY DECEMBER 3	FRIDAY DECEMBER 4	TIME
9:00	<b>WELCOME ADDRESS CAAMC AWARDS CEREMONY</b>		9:00
9:40	<b>TECHNICAL SESSION:</b> The Justification for Electrification	<b>TECHNICAL SESSION:</b> Connected, Intelligent, Autonomous Vehicle	9:30
10:00			10:00
10:40	<b>TEA BREAK</b>		10:30
11:00	<b>TECHNICAL SESSION</b> Electric Motor and Controls Advancement (Part I)	<b>TEA BREAK</b>	10:55
11:30		<b>TECHNICAL SESSION:</b> Smart Transportation	11:15
12:00			11:40
12:30	<b>NETWORKING LUNCH</b>		12:00
13:00		<b>NETWORKING LUNCH</b>	12:25
13:30	<b>TECHNICAL SESSION</b> Electric Motor and Controls Advancement (Part II)		13:00
14:00		<b>TECHNICAL SESSION:</b> Cyber Security	13:30
14:30	<b>TECHNICAL SESSION</b> Battery Management		14:00
15:00			14:30
15:30	<b>TEA BREAK</b>	<b>TEA BREAK</b>	15:15
16:00		<b>TECHNICAL SESSION:</b> Workforce Development	15:30
16:30	<b>TECHNICAL SESSION:</b> Electric/Electrified Powertrain Technologies		16:05
17:00		<b>PANEL DISCUSSION</b>	16:30
17:30			17:05
18:00		<b>CLOSING REPORT</b>	17:15

The purpose of this events 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.

## Registration:

Dec 2	Wednesday	14:00 - 17:00	Hotel Lobby, 1st Floor
Dec 3	Thursday	08:00 - 17:30	Ballroom Foyer, 2nd Floor
Dec 4	Friday	08:00 - 13:00	Ballroom Foyer, 2nd Floor

## Tea Break:

Location: Ballroom Foyer, 2nd Floor

## Networking Lunch:

Location: Cafeteria, 1st Floor

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## Hosts Introduction

### SAE International 国际自动机工程师学会

SAE International is a global technical association of more than 145,000 engineers and related 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 中国汽车工业协会车用电机电器电子委员会

Vehicle-Use Electron Motor & Electrical Appliance Electronics Committee is one of the branches of CAAM. It serves all automotive enterprises and entrepreneurs in China in electric motor, electrical appliances, electronics and new energy electric motor and electric control industries. Its slogan is "Trust Me, Better Service for You!" and is dedicated to serving enterprises. It combines with China Automobile Electronics and Electric Appliance Technology and Development Research Center and China Automobile Electric Appliance Information Website to build four platforms (Exhibition, Magazine, Forum and Research) for their member enterprises, providing the latest and most advanced technology information and leading the development of the whole industry.



### China National Automotive Industry International Corporation 中国汽车工业国际合作有限公司

China National Automotive Industry International Corporation (CNAICO) is a wholly-owned subsidiary of China National Machinery Industry Corporation (SINOMACH), a large state-owned 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 m<sup>2</sup>.



### Messe Frankfurt GmbH 法兰克福展览有限公司

Messe Frankfurt GmbH (literally "Frankfurt Trade Fair") is one of the world's largest trade fair 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.



# HOTEL FLOOR PLAN



**2F Floor Plan**

## SAE 2015 VEHICLE ELECTRIFICATION AND CONNECTED VEHICLE TECHNOLOGY FORUM STAFF TEAM

### Sherry McCaskey

Project Manager  
Sherry.McCaskey@sae.org  
+1-724-772-7150

### James Sherman

Technical Program Developer  
EEDM  
James.Sherman@sae.org  
+1-724-772-4034

### Arlene DiSilvio

Exhibit Sales & Sponsorships  
Arlene.DiSilvio@sae.org  
+1-724-772-4060

### Dawn Yuhas

Marketing  
Dawn.Yuhas@sae.org  
+1-772-724-4001

### Rick WANG

Project Coordinator  
Rick.Wang@sae.org  
+86-21-6140-8906

### Alan AO

Exhibit Sales & Sponsorship, China  
Alan.Ao@sae.org  
+86-21-6140-8920

### April WANG

Project Champion, China  
April.Wang@sae.org  
+86-21-6140-8923

### Will Chang

Marketing Program Manager, China  
Will.Chang@sae.org  
+86-21-6140-8919

# GENERAL INFORMATION

## SAE 2015 ENGINEERING MEETINGS BOARD (EMB)

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**Patrick Leteinturier**  
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## SAE INTERNATIONAL

### Warrendale Office

400 Commonwealth Drive  
Warrendale, PA 15096-0001 USA  
Phone: 1-724-776-4841  
Fax: 1-724-776-0790

### Shanghai Office

Room 2503, Litong Plaza, 1350  
North Sichuan Road, Shanghai,  
200080, P.R. China  
Phone: +86-21-6140-8900  
Fax: +86-21-6140-8901  
www.sae.org.cn

### Customer Service

1-877-606-7323  
(toll free U.S. and Canada)  
1-724-776-4970  
www.sae.org  
customerservice@sae.org

### Troy Office

755 W. Big Beaver Rd.  
Troy, MI 48084  
Phone: 1-248-273-2455  
Fax: 1-248-273-2494



9:00-9:15

## Welcome Address

*China National Automotive International Corporation*

*SAE International*

*China Auto Association Electric Motor and Electric Appliance Committee for Vehicle*

9:15-9:40

## China New Energy Vehicle Industry Outstanding Figures Awards Ceremony

## THE JUSTIFICATION FOR ELECTRIFICATION

9:40-10:00

### Shape the Future for Auto Electrification

*Charon Morgan, Director of Engineering, General Motor China*

10:00-10:40

### Global Outlook & Trends for Connected Cars and Electric Vehicles

*Lisa Whalen, Vice President, Automotive & Transportation Growth Consulting and Business Unit Leader, Frost & Sullivan's Americas Region*

## ELECTRIC MOTOR AND CONTROLS ADVANCEMENT

11:00-11:30

### Development Trends of Propulsion E-motor and Power Electronics for New Energy Vehicles

*William CAI, CTO, Jing-Jin Electric Technologies (Beijing) Co., Ltd.*

11:30-12:00

### Promote the Upgrading of Marketing to Looking Forward the Chinese Intelligent Manufacturing

*Huazhu GUO, President, Cheyibai Technology Co., Ltd of Jilin Province*

13:30-14:00

### System Design Based on ISO26262 to Improve Reliability and Safety

*Hao DONG, Automobile Electronics and Security Manager, TUV*

14:00-14:30

### Electric Motors are Continuing to Develop Driving Towards Hybrid Electric and Full Electric Vehicles

*Will Drury, Global Technical Expert - Power Electronics, Ricardo UK Ltd.*

## BATTERY MANAGEMENT

14:30-15:00

### Battery Pack Thermal System Design Using 3D Simulation

*Heinz Friz, Managing Director Asia Services, Exa*

15:00-15:30

### System design of BMS for vehicle electrification from Preh Joyson

*Michael Bischoff, Director, Battery Management & E-Mobility, Preh Joyson*

## ELECTRIC/ELECTRIFIED POWERTRAIN TECHNOLOGIES

16:00-16:30

### Three Paths to the Car of Future

*Luming LIU, Regional President, Bosch Engineering GmbH*

16:30-17:00

### Electric Traction: Roadway to a New Energy Economy Observations from California's New-Energy Experiments

*Don Christian, VP, eMobility, Resurgen Renewables*

17:00-17:30

### Power Hardware In The Loop For Inverter Testing (AVL PHIL™)

*Elie Naim, Technical Specialist -Electrification, AVL*

17:30-18:00

### Electrification Tailored to Fit

*Mario Koch, Research and Development Manager, Continental Corporation*

## CONNECTED, INTELLIGENT, AUTONOMOUS VEHICLE

9:00-9:45

### **In Search of Infotainment's "Killer Application"**

**Joe Barkai**, *Product and Market Strategist and Catalyst, Joe Barkai (A Managing Consulting Company)*

9:45-10:20

### **Impact of Connection and Automation on Electrified Vehicles Energy Consumption**

**Aymeric Rousseau**, *Manager, Systems Modeling and Control Section, Argonne National Laboratory*

10:20-10:55

### **Advanced Driver Assistance System(ADAS) Solution**

**Yunxia (Yolanda) XI**, *Product and Market Development Manager, Freescale*

## SMART TRANSPORTATION

11:15-11:50

### **Smart Engineering Solutions for Smart Transportation**

**William Bolander**, *Engineering Solutions Executive, IBM*

11:50-12:25

### **The 3rd pillar of autonomous public transportation**

**Yossi Aloni**, *VP Marketing and Sales, Optibus*

## CYBER SECURITY

13:30-14:05

### **System Security and Integrity for the Connected and Automated Vehicle**

**Scott McCormick**, *President, Connected Vehicle Trade Association*

14:05-14:40

### **Secure OTA Software Management For Automotive**

**Yoram Berholtz**, *Director of Automotive, Red Bend*

14:40-15:15

### **Automotive Cybersecurity — A U.S. Government Regulatory Perspective**

**Chan Lieu**, *Senior Legislative Advisor, Venable LLP*

## WORKFORCE DEVELOPMENT

15:30-16:05

### **Connected Vehicle Workforce – What Does the Future Hold?**

**Scott McCormick**, *President, Connected Vehicle Trade Association*

**Katherine Robertson**, *Executive, Mobile Comply*

## PANEL DISCUSSION

16:05-17:05

**Moderator:** Joe Barkai

**Panelists:** Scott McCormick, Chan Lieu, William Bolander, Aymeric Rousseau

17:05-17:15

### **Closing Report**

**Joe Barkai**, *Product and Market Strategist and Catalyst, Joe Barkai (A Managing Consulting Company)*



## Charon Morgan

Director of Engineering  
General Motors China

Charon Morgan was appointed director of Engineering at GM China, effective August 1, 2015. Based in Shanghai, she is leading GM's vehicle engineering and technology operations in China.

Morgan joined GM in 1997. She previously served as manager of GM China Engineering Operations and Systems Development at one of GM's joint ventures in Shanghai. Prior to that, she was manager of Vehicle Engineering Operations in the U.S. at the Warren Technical Center.

In addition, Morgan served as a project manager working with troubled suppliers. Her leadership of a team of engineers on the design and development of a new technology that significantly reduced one of the industry's top warranty issues won her the 2010 Boss Kettering Award. She has extensive technical experience in Chassis Systems and Vehicle Dynamics.

Morgan has a Bachelor of Science degree in mechanical engineering from Oakland University and a Master of Science degree in mechanical engineering, vehicle dynamics and chassis integration from Purdue University.

She serves on several boards and committees for SAE International, including the Technical Standards Board, Scholarship Advisory Committee and Executive Nominating Committee. Morgan also recently served on the SAE Board of Directors and was the 2011 SAE Detroit Section chair receiving multiple awards for her volunteer work, including SAE Member of the Year in 2010 and SAE Distinguished Younger Member in 2008. She has also been a member of the Detroit Section Governing Boards and Operations Board since 2007.

### PRESENTATION:

#### Shape the Future for Auto Electrification

##### ABSTRACT:

It is well known that the transportation sector has a significant impact on the global environment, especially climate change. Electric vehicles offer a cleaner alternative to vehicles powered by traditional internal combustion engines. The Chinese government is providing a positive environment to boost NEV development.

Before developing electric vehicles in China, GM carefully studied the needs of China's consumers. It plans to provide a full range of electric vehicle solutions, while continuing to make vehicles that are fun to drive, comfortable and eliminate range anxiety. Engineers put a lot of effort in the development of advanced electric vehicle components, including engines, drive units, batteries, on-board chargers and power inverters.

General Motors is very well-placed from an electrification standpoint. We have the full range of electrification solutions available at our disposal anywhere from light electrification to strong hybrids to plug in hybrids to pure electric vehicles.



## Lisa Whalen

Vice President  
Automotive & Transportation Growth  
Consulting and Business Unit Leader  
Frost & Sullivan's Americas Region

Lisa Whalen is Vice President,  
Automotive & Transportation Growth  
Consulting and Business Unit Leader

for Frost & Sullivan's Americas Region. In her role, she collaborates with automotive industry stakeholders to formulate growth strategies. She has managed several hundred research, analytical, and consulting projects and reports, including customer and product research; sales performance and forecasting; competitor intelligence insights; product planning; product, powertrain and technology roll-out plans; business, brand and marketing strategy development and serves as a thought leader on megatrends and their impact on urban mobility.

Prior to her tenure at Frost & Sullivan, Lisa worked for General Motors in three global regions (North America, Asia and Europe) and J.D. Power and Associates.

### PRESENTATION:

#### Global Outlook & Trends for Connected Cars and Electric Vehicles

##### ABSTRACT:

IOT is radically changing every industry including Automotive.

The modern day connected smartphone on wheels has functionality on par with any consumer device. Auto manufacturers whose traditional role was to sell cars have transitioned into full scale mobility solution providers relying heavily on the connectivity aspect. Ranging from entertainment to safety to security to aftersales, the connected car is providing value to multiple players in the ecosystem, including customers, OEMs and dealers. OEMs like Tesla have used connectivity to impact a very important challenge around electric vehicles adoption, addressing the range anxiety factor through a variety of useful contextual connected services. This presentation will focus on the following:

- What are the key trends, growth drivers and future outlook for electric vehicles in the different automotive markets? What use cases and applications are driving the future growth of the connected car market?
- Which OEMs are leading from a connected car strategy perspective? How does this differ between volume and premium OEMs?
- With the expectation of virtually 100% connected cars in the US by 2020, what business models are OEMs employing to successfully monetize this connectivity?
- Case studies of successful connected car programs, EV strategies and comparative analysis of activities of leading OEMs in both these markets
- Comparative analysis of the key vendors and solution providers to this market



**William CAI**

Founder and CTO  
Jing-Jin Electric

Dr. William Cai is Founder and CTO of Jing-Jin Electric. He obtained his B.Sc. and M.Sc. degrees from Harbin University of Science and Technology (HUST), Harbin, China, and the Ph.D. degree from Clarkson University, Potsdam, USA. He

serves as guest professor of Dr. CAI has worked in Asia, Europe and North America for over 30 years, including 15 years as researcher and professor in academic institutions and 18 years as chief designer of electric machines for HEV/PHEV/EV etc. He worked with HUST of China, WEMPEC at UW-Madison of USA, Swiss Federal Institute of Technology in Switzerland, Clarkson University of USA, Remy International Inc. of USA etc. Dr. Cai is one of the most productive experts in HEV/EV motor industry and designed the two mode HEV motors globally. The HEV vehicles with his designed and manufactured motors include Cadillac Escalade, Mercedes-Benz ML450, BMW X6, Chevrolet Tahoe, GMC Yukon, Dodge Durango, Chrysler Aspen, Chevrolet Silverado pick-up truck and Allison hybrid transmission etc.

Dr. CAI is co-founder and CTO of Jing-Jin Electric (JJE) and leads the development and manufacturing of range-extend EV (such as Fisker Karma) motors, hybrid transmission (such as Geely power-split hybrid) motors etc. The E-motors from JJE are onboard HEV/PHEV/EV of FAW, Geely Motors, Guangzhou Auto, BAIC Motors, Great Wall Motors etc. and over 25% of Chinese new energy buses are driven by JJE e-Motors. JJE ranks the top of production, sale and export of EV/HEV e-motors in China. Under his technical leadership, JJE is recognized as technology leadership in vehicular traction motor in China and the company wins E-motor volume production contract from one of American "big three".

Dr. William Cai is SAE Hybrid Motor Standard Committee member and IEEE senior member, EV Committee member of CES etc. He owned over 20 patents and published over 40 academic papers. He obtained many international and Chinese awards.

**PRESENTATION:**

**Development Trends of Propulsion E-motor and Power Electronics for New Energy Vehicles**

**ABSTRACT:**

Under the pressure of air pollution and fuel economy, pure and hybrid electric vehicles (HEV/EVs) are treated as the dominant candidates for environmental friendly and energy saving as well as user accepting future vehicles. The energy conversion and energy transferring is bidirectional through e-motors in HEV/EVs, compared to unidirectional energy flowing in conventional engine and transmission. HEV/EV

development in China and beyond analyzed.

Different motor topologies for powertrains are summarized. Motor type selection, design strategies and production methods for those HEV/EV applications are described. The impacts of system safety, battery performance, cooling system, available space, PM grade and usage, inverter ampere-volt characteristics on E-motors and their performance are investigated. Interior permanent magnet machine (IPM) and induction machine (IM) are compared, too. Future development tendency of electric powertrains and e-motor systems is also briefly discussed.



**Huazhu GUO**

President  
Jilin Cheyibai Technology Co., Ltd

Mr. Guo was born in 1974, and holds an MA degree in computer software. He is a senior economist and an accountant. He has worked in

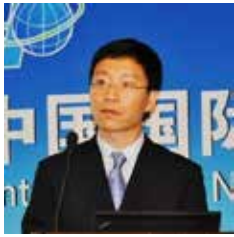
automobile industry for 20 years. He served as marketing salesman, market analyst, financial manager, IT manager, etc. of Fawer Automotive Parts Limited Company, and was responsible for implementation of ERP projects of ORACLE, QAD, etc. He has extensive experience in marketing management, financial management, enterprise information construction, etc. Currently he is president of Eauto100 Technology Co. Ltd. in Jilin province.

**PRESENTATION:**

**Promote the Upgrading of Marketing to Looking forward the Chinese Intelligent Manufacturing**

**ABSTRACT:**

The essence of "Chinese manufacturing 2025" is to transform the existing manufacturing process by using the Information Technology, to promote the product manufacturing process by information and to make the personalized customization come true. In order to achieve this goal, enterprises should take full advantage of all methods to collecting, sorting out and analyzing customer information such as E-commerce, mobile Internet, cloud computing and Big Data analytics. Meanwhile new challenges may arise in the traditional marketing management mode. It is imperative to transform and upgrade the enterprise marketing management mode.



## Hao DONG

Automobile Electronics and Security Manager  
TÜV SÜD

Dr. Dong Hao is Senior Expert for ISO26262 Functional Security. Dr. Dong got his Ph.D. of Micro Electronics from Qinghua University

in 2010. He is TUV SUD's Automobile Electronics and Security Manager for the Great China. Dr. Dong was engaged in functional security development when he worked for a Chinese automobile electronics supplier.

He has been providing technical support, evaluation and audit for many OEMs and suppliers since he joined TUV SUD Great China.

### PRESENTATION:

#### System Design Based on ISO2662 to Improve Reliability and Safety

##### ABSTRACT:

As new energy technologies rapidly move forward, so do NEV control and propel technologies headed by battery, motor and electronic control, etc. Not only costs are required to be lower, experts are also expected to create higher reliability and safety for new energy technologies.

This higher requirement is specially mirrored in the unprecedented attention paid to fault diagnosis and treatment specified by ISO26262 and the ever richer technological reserve.

ISO26262 proposes a variety of referable solutions for redundancy design and fault diagnosis in kinds of complicated control environment, covering a variety of life-cycle development activities regarding concept development, system design, and hardware/software design.

ISO26262 also covers guarantee measures for development processes and safety technologies.

This presentation will discuss how to analyze the risk of new energy power train, concept design and system design based on ISO2662 to improve the reliability and safety of new energy power train.



## Will Drury

Global Technical Expert – Power Electronics  
Ricardo UK Ltd.

Dr Will Drury is currently Global Technical Expert – Power Electronics for Ricardo and is directly responsible for the delivery of electric machines & power

electronics projects for Ricardo Europe, leading a team of engineers on the development and implementation of entire drive systems through client projects. Will supports Ricardo's work on this across a worldwide client base delivering new technology platforms and working closely with existing and potential clients on technology innovation with extensive work with clients in Europe, China and the USA. He works directly on the application of electric drive (eMachines, power electronics and control) to a wide range of applications including automotive, rail, clean energy, marine and off-highway. Will has a keen interest in the development of power electronics and their application throughout the transport infrastructure looking at novel ways to apply existing products as well as embracing emerging technologies.

### PRESENTATION:

#### Electric Motors are Continuing to Develop Driving Towards Hybrid Electric and Full Electric Vehicles

##### ABSTRACT:

Electric machines and power electronics are becoming the workhorse of the automotive industry. With the increase in electrification from stop/start technology through to full battery electric vehicles (BEVs) the development of eMachine and power electronic technologies is essential. The overwhelming choice of traction machine in the passenger car market is permanent magnet synchronous machines (PMSMs) although with the volatility in rare-earth material costs at the start of the decade much research has been undertaken on the development of PM-free designs. This presentation will look at the impact of such an approach on the sizing of the eMachine and also the power electronics and if, through judicious sizing considering the emerging WLTP drive cycle, machine designs will change in future vehicles.



## **Heinz Friz,**

Managing Director Asia 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.

### **PRESENTATION:**

#### **Battery Pack Thermal System Design Using 3D Simulation**

#### **ABSTRACT:**

Developing battery pack thermal systems using physical tests is challenging because many potential thermal designs need to be considered and batteries must perform over a broad range of temperatures and states of charge. Additionally, the heat rejection in a pack is both a function of the duty cycle the pack and the temperature of the pack. Physically testing to optimize pack thermal performance can be difficult because of the transient nature of battery usage and the need to precondition a battery prior to a test. For example, after a discharge test, several hours may be required to charge and cool a pack before conducting another test. The variability of battery behavior combined with a slow testing cycle makes tuning and optimization difficult to achieve using bench and vehicle tests.

To address this problem a simulation based methodology was developed. This methodology starts with high level requirements that define the pack electrical and thermal performance. The operating temperature band, the drive cycles, and the environment for the vehicle are defined. These requirements are used to select cell chemistry, the number of cells in a module, and the number of modules in a pack. From these battery design choices, a battery electrical and thermal model is created. The electrical model is created from test data. The thermal models is created from geometry and validated with the electrical test data. This minimal amount of testing is used to create the pack model which includes the thermal protection system. The pack model is evaluated at various locations on the vehicle. These thermal protection designs are evaluated for attributes such as electrical performance, battery temperatures, cool down times, and cooling efficiency.



## **Michael Bischoff**

Executive Director  
Battery Management System &  
E-mobility  
Preh Joyson

Mr. Michael Bischoff joined Preh Joyson in November 2013 as executive director of business division "Battery Management System & E-mobility" with over 25 years of experiences in automotive electronics, especially

in crash and occupant sensing systems, restraint systems, battery management systems etc.

Michael Bischoff got his Diploma degree from the University of Kaiserslautern in Germany majoring in electrical engineering. He then moved to Siemens for the development of electronic control units for airbags, later to Conti Temic in Ingolstadt as project manager. Before his joining to Preh Joyson, he was working as Director/ Vice President global BMW and Middle East Business Unit in Takata-Petri AG.

Based on his study as well as on years of working experiences in the automotive industry, Michael Bischoff has a very broad view of automotive product development, project progress and international automotive market. Together with his teams in Germany and in Ningbo, he devotes himself now into promoting the further development of electric vehicle industry, trying to find the best solution for battery management system.

### **PRESENTATION:**

#### **System design of BMS for vehicle electrification from Preh Joyson**

#### **ABSTRACT:**

New energy vehicle (NEV) is a new transportation worldwide and the market of this industry is growing fast in the past few years. New Energy Vehicle introduced high voltage system. The high voltage related design and its feature becomes a new challenge for the whole automobile industry. This change leads market requirement of a reliable BMS design. In this area, BMS does not only monitor, protect and balance the battery system but also controls the power circuits and charge/discharge the battery system. BMS is a key component of powertrain and all these functions are safety related. Therefore, designing a high-quality BMS is essential for automotive industry. Modular design and its related technology has the advantages of easier assembling, less wire harness, more reliability, higher reusability and robustness, and these features are all make the BMS more safety.

This presentation explores the following topics in details:

- BMS system design and in-vehicle application
- BMS modular design, technology and systematic overview
- Benefit of BMS modular design and its improvement
- Next generation technology and challenges



## Luming LIU

Regional President, Bosch Engineering GmbH

Mr. Liu Luming is now regional president of Bosch Engineering GmbH (BEG) in China, and located in Shanghai. Before taking lead of BEG/China, Mr. Liu had been working in Bosch group for 10 years. Mr. Liu used to be vice president of Bosch (China) Investment Ltd., and responsible for sales to Original Equipment Manufacturers (OEMs). Mr. Liu was Operation Director of TRW Suzhou Automotive Electronics Ltd., before joining Bosch group.

### PRESENTATION:

#### Three Paths to the Car of Future

#### ABSTRACT:

The world is changing, and same is mobility. Base on this future vision of mobility, the Bosch Business sector of Mobility (BBM) concludes the 3 most promising technical trends are Electrification, Automated Driving and Connectivity.

Bosch has a full range portfolio for automotive, Bosch helps manufactures to choose the most suitable, rather than most expensive solution, to face future challenges. The technologies are not independent. To utilize the 3 future technologies, the developer of Future Car should have system understanding, and cross-domain competence.



## Don Christian

VP of Engineering  
Resurgens Renewables

Don works as VP of engineering for Resurgens Renewables, a California startup focused on electric mobility and energy. His current projects involve new drivetrain designs for both hybrid and all-electric propulsion and electrical nano-grids associated with PEV energy provisioning. Don engineered, integrated, and tested EV propulsion and cooling systems at Coda Automotive, including NHTSA crash tests. At BAE Systems, his armored combat vehicle designs were used in hybrid tracked and wheeled trucks, and were proven through range tests and hostile combat operations. His agricultural harvesters and aircraft ground support vehicles continue in field use, and his autonomous robotic vehicle designs are in production use today for semiconductor clean-room material transport.

Don is an inventor of 22 US plus many foreign patents. He has taught internationally a variety of technical courses and publications, in Europe, Asia, and the US. He's a senior member of IEEE & SAE, is an elected Fellow of the Society of Manufacturing Engineers, and a member of SAE's J1772 conductive charging standards task force for plug-in electric vehicles. He plays guitar whenever he can, and is an avid scuba diver.

### PRESENTATION:

#### Electric Traction: Roadway to a New Energy Economy Observations from California's new-energy experiments

#### ABSTRACT:

The continuing electrification of powertrains is driving automotive architectures toward electrical power distribution grids, specifically modern nanogrids. This transformation is being driven in part by traction motors capable of regenerative braking and partly by the inclusion of the large storage battery into the powertrain domain. The power grid model consists of generation, transmission, and distribution components, as well as grid-scale storage, and all have automotive analogs and hold the potential of more broadly shared technologies and components. This paper will examine some pitfalls that have become apparent with the emergence of modern hybrid and plug-in vehicles (including PHEV and EV), and some potential lessons from 100 years of utility power production. It will also examine some extrapolations and potential benefits from the looming synergistic unification of these previously unrelated power technologies.



## Elie Naim

Technical Specialist  
Vehicle Electrification  
AVL

Elie joined AVL in 2014 as a Technical Specialist for Vehicle Electrification, his role is a combination of technical and business development activities.

He supports OEMs/Suppliers in selecting the right testing equipment and test cells for the EV application programs for Motors, Batteries, and Power electronics. In addition he provides consultancy in the EV market. He has more than 14 years of experience in the Automotive and Defense industries and has worked at companies such as BAE Systems as a Research and Development Engineer, and Coda Automotive as a Lead Power electronics Engineer. He worked on research and development projects as well as production projects in industries including Electronics, Power electronics Hybrid Propulsions and Pure E V propulsions. In addition, Elie was an Adjunct Faculty Professor at Lawrence Technological University in the College of Electrical and Computer Engineering.

Elie attended Wayne State University for Undergraduate and Graduate Studies in Electrical Engineering in the Motor City, Detroit, Michigan, USA.

### PRESENTATION:

#### Power Hardware In The Loop For Inverter Testing (AVL PHIL ™)

##### ABSTRACT:

As the electrification of powertrains has increased in popularity, there has been a greater need to increase efficiency during the testing and development stages. The testing methodology for electrification is different than a typical internal combustion engine application. For example, the inverter cannot be compared to a typical internal combustion engine component because it does not exist in an IC engine. One challenge is to have a unique test cell for inverter testing. Currently, most inverter developers use three test methods to prepare the inverter for production:

- 1) Test the controls and the CAN communication using a Low Voltage Hardware In The Loop.
- 2) Perform the system calibrations where it is a combo of a vehicle and dynamometer testing and development.
- 3) Do fault insertions testing in the vehicle. Ideally, these three methods would be combined in a single test cell.



## Mario Koch

Research and Development  
Manager  
Continental Corporation

- 2015 – recent Head of HEV R&D Asia (Continental, Shanghai(China))
- 2013-2014 Head of SW Engineering Korea (Joint venture SK-Continental E-Motion, Daejeon/Korea)
- 2010-2012 Software Project Leader for Hybrid Electric Systems (Continental, Berlin/Germany)
- 2004-2010 Head of System Integration for Integrated Car Infotainment Systems (VDO/Conti, Germany)
- 2000-2004 Consultant for Systems Engineering at Siemens / SiemensVDO
- 1995-2000 System development responsible for medical systems (minimal invasive surgery)
- 1988-1994 active duty as System Engineer for Military IT systems
- Education: Engineer for Industrial Electronics (MA), Univ. for Applied Sciences Görlitz/Dresden

### PRESENTATION:

#### Electrification Tailored to Fit

##### ABSTRACT:

Continental Business Unit Hybrid Electric Vehicle has developed a new generation of electric drivetrain, aiming for high versatility based on a component platform concept. The new drivetrain "EMR Gen3" uses key components of power electronics from actual series production. Combined with a new, customizable motor and gearbox the system can satisfy a wide range of customer requirements.





**Joe Barkai**

Product and Market Strategist and Catalyst  
Joe Barkai

Joe Barkai is a global thought leader with more than 30 years of experience in helping organizations chart their product and market strategy. His background at the union of business and technology with hundreds of

organizations across diverse industries, provides a unique ability to “connect the dots” and clearly articulate the ever-evolving business value of technology.

Joe helps global manufacturing companies assess and improve product development, manufacturing operations and after sales service, and make intelligent strategic investments in process improvement and software tools to improve these activities.

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, Nissan and Toyota. He appeared on CNN and was quoted in the Wall Street Journal, The New York Times, CIO Magazine, and numerous industry publications.

Joe’s ongoing market research and pragmatic approach provide a solid foundation of knowledge and insight for board members and senior executives trying to make sense of the fast changing technology landscape to drive strategic technology decisions, accelerate market adoption and improve organizational decision-making.

**PRESENTATION:**

**In Search of Infotainment’s “Killer Application”**

**ABSTRACT:**

This year, the Millennial Generation will surpass Baby Boomer as the U.S.’s largest living generation. Consumers living the always-connected lifestyle expect continuous access to personalized information and services delivered to their mobile device, independent of the car they happen to be driving.

Automakers have done a poor job recognizing the importance of this mobile-centric lifestyle. Outdated business models place the vehicle in the center of the connected car universe, conflicting with consumers’ lifestyle and forcing duplication of services and content.

In his opening comments, Joe Barkai will introduce the notion of the consumer’s mobile digital identity, and discuss the crucial role of connected car models that place the consumers—drivers and passengers—in the center. Drawing comparison to the consumer product companies, Joe will discuss infotainment “killer applications”, and offer analysis, perspective and forecast of the adoption of connected cars.



**Aymeric Rousseau**

Manager of 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 Autonomie. Autonomie has been developed in collaboration with General Motors to accelerate the development and introduction of advanced technologies through a Plug&Play architecture.

**PRESENTATION:**

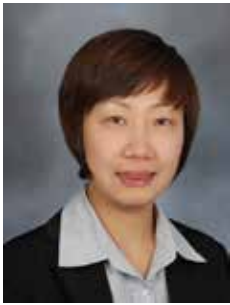
**Impact of Connection and Automation on Electrified Vehicles Energy Consumption**

**ABSTRACT:**

Connectivity and automation are increasingly being developed for cars and trucks, aiming to provide better safety and better driving experience. As these technology mature and reach higher adoption rates, they will also have an impact on the energy consumption: connected and automated vehicles (CAVs) may drive more smoothly, stop less and move at faster speeds, thanks to overall improvements to traffic flows. These potential impacts are not well studied and their study tend to focus solely on conventional engine-powered cars, leaving on the side electrified vehicles such as hybrid electric vehicles (HEVs) and battery electric vehicles (BEVs).

This work intends to address this issue by analyzing the energy impact of various CAV scenarios on different types of electric vehicles using high-fidelity models. The vehicles, all midsize, one HEV, one BEV and a conventional are modeled in Autonomie, a high-fidelity forward-looking vehicle simulation tool. They are simulated on various CAVs scenarios, modeled by variations of the drive cycle.

First, a reference fuel consumption is obtained for steady-state speeds, which estimate an optimal state reached by the highest achievable connectivity degree, in which vehicles never stop and drive at constant speed. Secondly, Real World Driving Cycles (RWDC) are selected from a database of recorded GPS traces in the Chicago area. Energetic criteria are used to select RWDC representing the average driving style. Different changes to the original speed profiles are then applied to represent the connectivity impact: some stops are removed, speed is smoothed and strong accelerations are saturated. An overall increase in speed is also investigated to represent improved traffic flow. In each case, the distance remain the same as in the original case, representing the same origin and destination. A detailed energy analysis is finally performed, highlighting the close relationship between CAV technologies and powertrain electrification.



## **Yunxia Xi**

Product & Marketing Development Manager  
Freescale

Dr. Xi Yunxia, graduated from the National University of Singapore and got doctor's degree in major of Electronic Engineering. She has over ten years of rich experience in the application of MCU in the automobile

sector. Ever since joining Freescale as a manager in MCU product and market development in 2010, she has been responsible for MCU marketing strategies in the fields of automobile chassis and safety as well as the advanced driver assistance system (ADAS). Dr Xi has rich experience in MCU architecture, automobile application solutions and function safety.

### **PRESENTATION:**

#### **ADAS Solutions**

#### **ABSTRACT:**

ADAS is evolving from passive to active, comfort to safety, invisible to visible, informative to assertive. As car manufacturers are facing new technical, legal and commercial hurdles when designing for advanced safety systems. This session will cover the latest ADAS product and solutions, including both radar and vision solutions, which will help car manufactures move toward an open road for autonomous vehicles.



## **William Bolander**

Engineering Solutions Executive  
IBM

Bill earned his ME/EE bachelor's degree in 1983 from General Motors Institute, now Kettering University. He was awarded a GM fellowship to Purdue University where he earned a master's degree in mechanical engineering in 1984.

After graduation, he joined Saturn Powertrain as part of the team that developed Saturn's engine control system. In 1994, Bill transferred to GM Powertrain's Algorithm Engineering group. In 1996 he became the Manager of Algorithm Engineering and in 1998 was promoted to the position of Technical Specialist for Algorithm Engineering within GM Powertrain's Electronics, Integration & Software organization.

In 2000, Bill was promoted to GM Technical Fellow responsible for GM Powertrains Global Control Engineering Processes. In this role, he led the Controls Engineering Process Group responsible for process improvement activities, including ISO 9001 and CMMi.

In 2009, Bill's role expanded to include all of GM's Electrical, Controls and Software development, for both Powertrain and Vehicle Product Development. Bill led a program to commonize GM's engineering processes and tools used globally.

In 2013, Bill joined the IBM Rational team as a Global Automotive Solution Executive where he is helping the industry adopt smarter product development processes and tools. Bill holds 16 US patents for automotive related innovations, including traction control system, coolant loss protection, clutch to clutch transmissions and several in the field of combustion knock control.

Bill's contributions to GM's technology have earned him four "Boss" Kettering Awards, more than anyone else in GM history, this award is GM's highest recognition for engineering invention.

In 1995, Bill was the first winner of the \$500,000, Lemelson-MIT Prize, the nation's largest single prize for invention and innovation.

### **PRESENTATION:**

#### **Smart Engineering Solutions for Smart Transportation**

#### **ABSTRACT:**

The development of smart transportation systems will require the use of smarter engineering solutions. What capabilities do engineers need to face the challenges of today? How can we design for safety and security? How can we find efficiency and quality through strategic reuse? When and how should the products be tested? How can we leverage data to gain insight and take action? What, if any, benefits will strategic adoption of IoT bring? How can the complexity be managed? These and other challenges of engineering the transportation systems of tomorrow will be explored.



## Yossi Aloni

VP Marketing and Sales  
Optibus

Yossi Aloni is a senior marketing and sales executive with 25+ years of strategic and field experience, across five continents. Yossi served in leadership roles for large companies, like: BMC Software, HP, and Amdocs, and also in key positions for startup

companies, like: Applisonix. Yossi now heads the marketing and sales for Optibus, leading the breakthrough of its innovative transportation optimization technology into the global markets.

### PRESENTATION:

#### The 3rd pillar of autonomous public transportation

#### ABSTRACT:

Autonomous cars technology is already here. Sensors and analysis chips are ready, Google autonomous cars passed the one million miles with only 11 accidents, all of them due to human driver errors. First few US states already adopted new regulations to allow the usage of autonomous cars.

The first segment to use autonomous vehicles and benefit from its advantages will most likely be the public transportation industry..

However, the autonomous buses and the passengers' real-time technologies are not sufficient. To enable this revolution, a 3rd pillar of autonomous technology is required: A back-end autonomous scheduling system

Early adoption of autonomous scheduling systems is critical to the launch of autonomous buses. This technology is already available today in the market, although it will have to grow and mature to meet the challenges of an overall autonomous buses system.



## Scott McCormick

President  
Connected Vehicle Trade Association

Scott has degrees in Mathematics, Mechanical and Aerospace Engineering, a Master's in Business Administration, and Doctoral Research in Artificial Intelligence.

In 2004 Scott founded and was named President of the Connected Vehicle Trade Association by the Board of Directors. Previously Scott was the Executive Director of the Automotive Multimedia Interface Collaboration, a nonprofit research organization of the world's largest automakers. Prior to this Scott was General Electric's Factory with a Future Program Manager, implementing over \$1 billion in advanced systems.

Scott is a former Advisor to the United States National Science Foundation and the Industrial Sector Representative to the US Federal Laboratories Technology Transfer Consortium. He is a Member of the US ISO Technical Advisory Group and a Member of the Steering Committee to the Joint Commercial-Military Technology Transfer Committee.

In March 2012, and again in 2014, Scott was appointed by the United States Congress to advise the Secretary of Transportation on matters relating to the study, development, and implementation of Intelligent Transportation Systems.

### PRESENTATION:

#### System Security and Integrity for the Connected and Automated Vehicle

#### ABSTRACT:

Risks of compromising vehicle computing and communication systems, as well as driver and passenger privacy are a growing concern. These threats come from potential malicious intrusion, program collisions and software defects. As the vehicle architecture becomes increasingly more complex, so does the risk of system disruption and privacy breach. This presenting will provide a broad overview of the vehicle software landscape with regards to security and integrity, address policy and regulatory concerns, and provide an overview of technical, regulatory and legal activities in place and under development to mitigate the risks.



**Yoram Berholtz**

Director of Automotive  
Red Bend

Mr. Berholtz oversees the automotive activities in redbend including partnerships and go-to-market strategies. Mr. Berholtz has experience in system engineering, product management, marketing and partner

management. Prior to joining redbend, Yoram worked in Marvell, Intel, Motorola and several venture capital-supported companies. Mr. Berholtz hold B.Sc.E.E from Tel-Aviv University and MBA from Bradford University.

**PRESENTATION:**

**Secure OTA Software Management For Automotive**

**ABSTRACT:**

To harness the full potential of efficiently managing the connected car, OEMs should be able to update and configure the software remotely Over-The-Air (OTA) using differential updates. However, to ensure the adoption of OTA management by vehicle manufacturers and drivers alike, a production-grade solution must combine update efficiency with the strictest safety and security standards. In this presentation I will go over: key market trends, the security challenges of a general update solution, and how the proposed solution can address it.



**Chan Lieu**

Senior Legislative Advisor  
Venable LLP

Chan Lieu is a member of Venable's Legislative and Government Affairs Group who represents emerging and established technology firms. A veteran of the Legislative and Executive Branches, Mr. Lieu has

significant experience in a broad range of policies involving the automotive industry, data and cybersecurity, privacy, internet technologies, federal scientific research and development, innovation and economic competitiveness, civilian space policy, nanotechnology and other emerging technologies.

Most recently Mr. Lieu served as Director of Government Affairs, Policy and Strategic Planning at the National Highway Traffic Safety Administration (NHTSA). In this position Mr. Lieu led NHTSA's liaison activity with Members of Congress, their staffs and various committees while advising senior leadership on pending legislation. He also managed a NHTSA team responsible for developing the agency's strategic plan and operational goals for the future of auto transportation safety.

Prior to joining NHTSA, Mr. Lieu spent eight years on the staff of the U.S. Senate Committee on Commerce, Science and Transportation as a Senior Professional Staff Member. Through this position he managed the team responsible for the overall operation of the Subcommittee on Science, Technology, and Space, oversaw the production of numerous committee hearings, and advised Members throughout the various phases of the legislative process resulting in the enactment of seven federal laws.

Mr. Lieu began his career with the federal government at the General Services Administration as a Security Specialist in the Presidential Management Fellows Program. He served as the lead cybersecurity specialist on FirstGov.gov projects and major e-government initiatives such as e-Authentication, GovBenefits, DisasterHelp and DisabilityDirect.

**PRESENTATION:**

**Automotive Cybersecurity—A U.S. Government Regulatory Perspective**

**ABSTRACT:**

With the automobile growing increasingly connected and featuring advanced active safety technologies that rely on sensors, sophisticated algorithms, and software to make critical driving decisions, properly understanding and managing cybersecurity risks in the vehicle will be critical for the entire auto industry and the motoring public. Government regulators, such as the National Highway Traffic Safety Administration, will be expected to outline the standards and regulations to ensure that these vehicles are safe. This session will review the U.S. regulatory system and highlight actions the industry can take to proactively provide safety without compromising innovation.



## **Scott McCormick**

President  
Connected Vehicle Trade Association

Scott has degrees in Mathematics, Mechanical and Aerospace Engineering, a Master's in Business Administration, and Doctoral Research in Artificial Intelligence.

In 2004 Scott founded and was named President of the Connected Vehicle Trade Association by the Board of Directors. Previously Scott was the Executive Director of the Automotive Multimedia Interface Collaboration, a nonprofit research organization of the world's largest automakers. Prior to this Scott was General Electric's Factory with a Future Program Manager, implementing over \$1 billion in advanced systems.

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### **PRESENTATION:**

#### **Connected Vehicle Workforce – What does the future hold?**

#### **ABSTRACT:**

Connected vehicle is painting our technology and infrastructure landscape daily in the news. Learn about what the connected vehicle is, why it's important to prepare the workforce, and more importantly how to train your team.



## **Katherine Robertson**

Executive  
Mobile Comply

Katherine Robertson is an Executive at Mobile Comply, an internationally recognized company that specializes in training workforces in Connected Vehicle. Their Connected Vehicle Professional Credentialing Program

offers the industry's only certification in Connected Vehicle with SAE International and Connected Vehicle Trade Association. Katherine's passion for learning and teaching drives her to embody the Mobile Comply mission: to "empower innovative people to change their possibilities in a connected world." A graduate of the University of Delaware Organizational and Community Leadership program, Katherine excels at working with industry professionals to leverage their knowledge and drive results in their companies.

### **PRESENTATION:**

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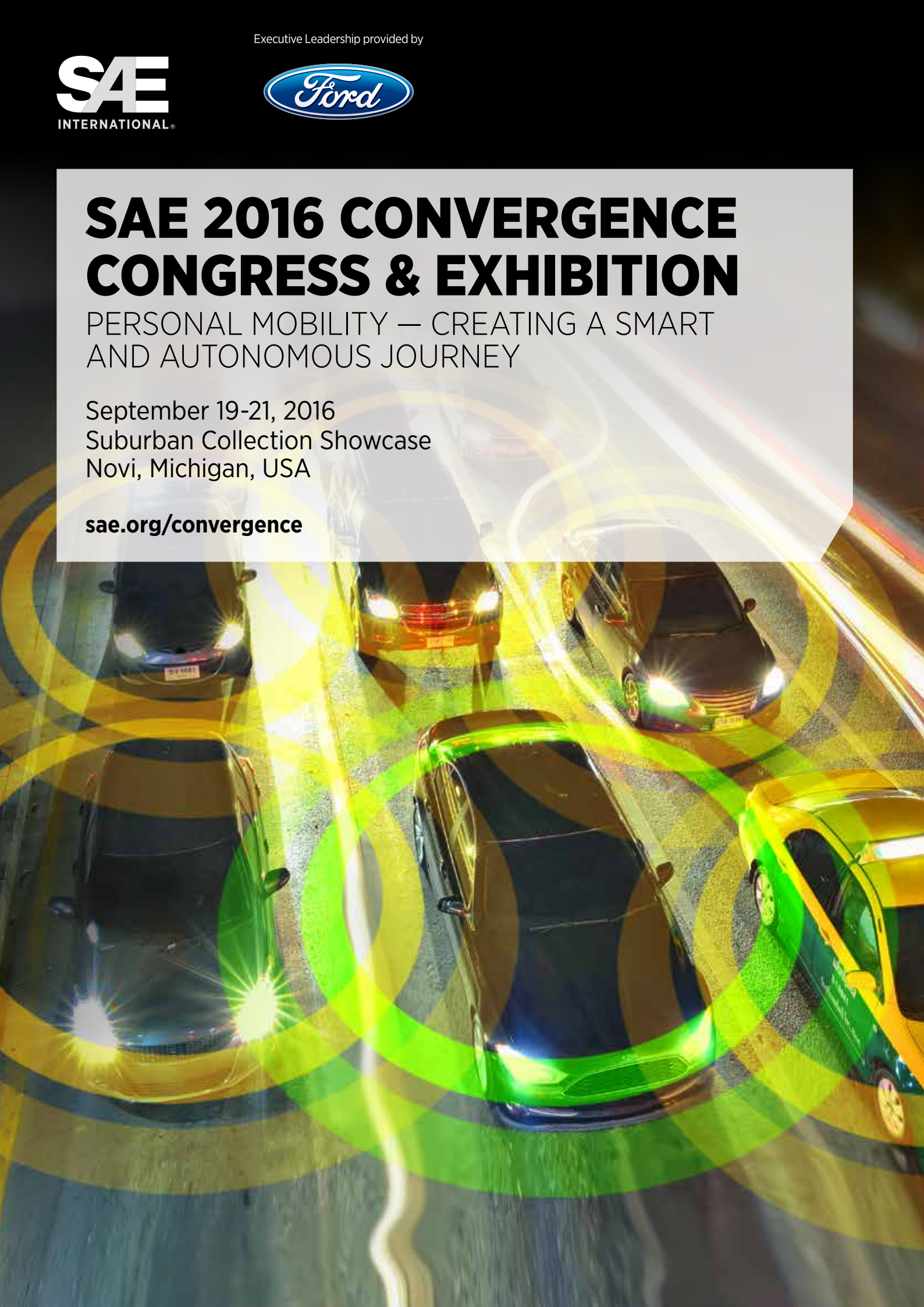


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PERSONAL MOBILITY — CREATING A SMART  
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### Contact Us:

Shanghai Office:

Address: Room 2503, Litong Plaza, 1350 North Sichuan Road, Hongkou, Shanghai, 200080 P.R. China

Phone: +86-21-6140-8900

Email: chinaoffice@sae.org

Website: [www.sae.org.cn](http://www.sae.org.cn) (Chinese)  
[www.sae.org](http://www.sae.org) (English)

