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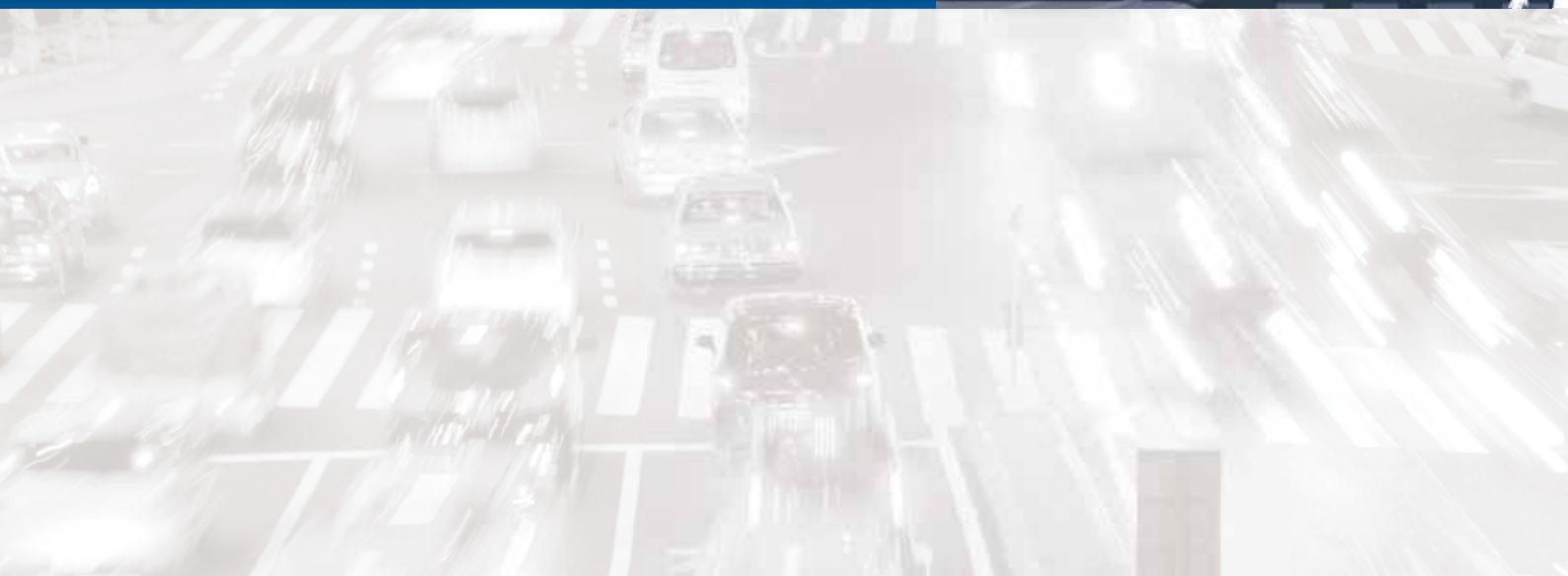
25m

2020 国际汽车 安全与测试大会

INTERNATIONAL AUTOMOTIVE SECURITY,
SAFETY & TESTING CONGRESS

2020年11月10-11日

上海 安亭·上海国际汽车城



耐火 L1: 1100°C, 15min L2: 1100°C, 60min L3: 1100°C, 120min	防水 100m, 240hr	冲击 100Gs, 50ms	穿透 23kg, 1.5m, 0.4cm ²
挤压 L1: 5kN L2: 50kN L3: 112kN	急冷 (消防水冲) 1100°C, 10kg/s	抗爆 1008kPa, 0.5ms	电磁暴 0.2m, 10kA/10ms

汽车黑匣子

亮点 (Highlights):

- 设计精巧 (Elegant Design)
- 重量轻 (Light Weight)
- 性价比高 (High Cost-Effectiveness)
- 数据恢复便捷 (Convenient Data Recovery)
- 客户订制 (Customization)

记录项 (Recording Items):

- 视频 & 音频 (Video & Audio)
- 车辆运行数据 (Vehicle Running Data)
- 远程通信终端 (Remote Communication Terminal)
- 自动驾驶/无人驾驶 (Autonomous Driving)
- 传感器信号 / GPS, 北斗 (Sensor Signals / GPS, BeiDou)

增强型
防护
存储器

(QF-A 系列)

尺寸: 122 x 88 x 57mm

重量: 0.98kg

加固型
防护
存储器

(QG-A 系列)

尺寸: 129 x 93 x 62mm

重量: 2.28kg

超强型
防护
存储器

(QG-C 系列)

尺寸: 136 x 97 x 74mm

重量: 2.5kg



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HOSTS INTRODUCTION 主办单位介绍



SAE International 国际自动机工程师学会 是一家全球性的学会组织，致力于推动造福人类的航空航天、汽车、商用车及工程农用机械行业知识与解决方案的发展。为了实现安全、清洁、便捷的交通运输解决方案，SAE 在全球建立了拥有 20 万名工程师、技术专家及志愿者的网络平台，并不断培养行业专业人才。我们工作的两大优先事项是：激励航空航天、汽车、商用车及工程农用机械行业工程专业人才的终身学习，并为行业工程设定标准。我们通过慈善机构 SAE 基金会的工作努力创造一个更美好的世界，包括 A World in Motion（运动中的世界）和 Collegiate

Design Series（大学生设计系列）等项目。

SAE International 国际自动机工程师学会，作为目前全球最大的航空航天、汽车、商用车及工程农用机械行业的标准制定组织之一，始终致力于：

- 搭建中立平台，促进解决社会的出行需求
- 提供全球最可靠、最全面的工程资源，促进行业发展
- 通过 STEM 教育与职业发展项目，激发与培养行业现有与未来劳动力
- 通过共识的标准，提高产品质量、安全性和创新性
- 搭建全球性的社区，通过集体智慧让出行更安全、更清洁、更便捷

SAE International is a global association committed to advancing mobility knowledge and solutions for the benefit of humanity. By engaging nearly 200,000 engineers, technical experts and volunteers, we connect and educate mobility professionals to enable safe, clean, and accessible mobility solutions. We act on two priorities: encouraging a lifetime of learning for mobility engineering professionals and setting the standards for industry engineering. We strive for a better world through the work of our philanthropic SAE Foundation, including award-winning programs like A World In Motion® and the Collegiate Design Series™.

SAE International, as one of the world's largest standard development organizations in the mobility industries, we provide society and the global mobility engineering community with:

- Neutral forums that convene to address society's mobility needs
- The most reliable and comprehensive collection of engineering resources that advance mobility
- STEM education and professional development programs that inspire and build mobility's current and future workforce
- Consensus-based standards that advance quality, safety and innovation
- A global community whose collective wisdom makes mobility safe, clean and accessible



上海国际汽车城地处嘉定，是上海面向长三角的门户、沪宁发展轴的重要节点城市。经过 19 年开发建设，汽车城已建设成为国内汽车产业规模最大、研发水平最高、产业链最完整的汽车产业基地。当前，在汽车产业电动化、智能化、网联化、共享化新变革趋势下，汽车城正以丰富的研发资源为优势，

不断探索布局汽车前沿领域，持续推动商业模式创新，加快构筑汽车人才高地，力争实现“在国内占领制高点、在国际上有一席之地”。

Shanghai International Automobile City (SIAC), situated in Jiading Distict, serves as the portal in the Yangtze River Delta and a key node that connects growth between Shanghai and Nanjing. After 19 years of development and construction, an auto industry base that boasts the largest auto industry cluster, highest-level R&D capabilities and the most complete auto industrial chain has been built in SIAC. Against the backdrop of the new transformation trends in electric, autonomous, connected and shared vehicles, SIAC is continuously exploring the cutting-edge of the auto industry and is committed to driving business model innovation, accelerating the construction of auto industry talent highland and therefore strives to “occupy the commanding heights of the auto industry in China and gain a foothold in the global auto industry” based on its rich R&D resources.

ORGANIZING COMMITTEE 会议组委会



周青 博士

清华大学
教授
大会主席

Dr. ZHOU Qing
Professor
Tsinghua University
Chairman



刘虹 博士

上海工业控制安全创新
科技有限公司
首席技术官

Dr. LIU Hong
CTO
TICPSH



朱西产 博士

同济大学
教授

Dr. ZHU Xichan
Professor
Tongji University



董浩 博士

清华大学苏州汽车研究院
汽车电子安全所所长

Dr. DONG Hao
Director of Automotive
Electronic Safety
TSARI, Tsinghua University



夏勇 博士

清华大学
副研究员

Dr. XIA Yong
Associate Researcher
Tsinghua University



张玉新 博士

吉林大学汽车仿真与控制
国家重点实验室
副教授

Dr. ZHANG Yuxin
Associate Professor
State Key Laboratory of
Automotive Simulation
and Control
Jilin University

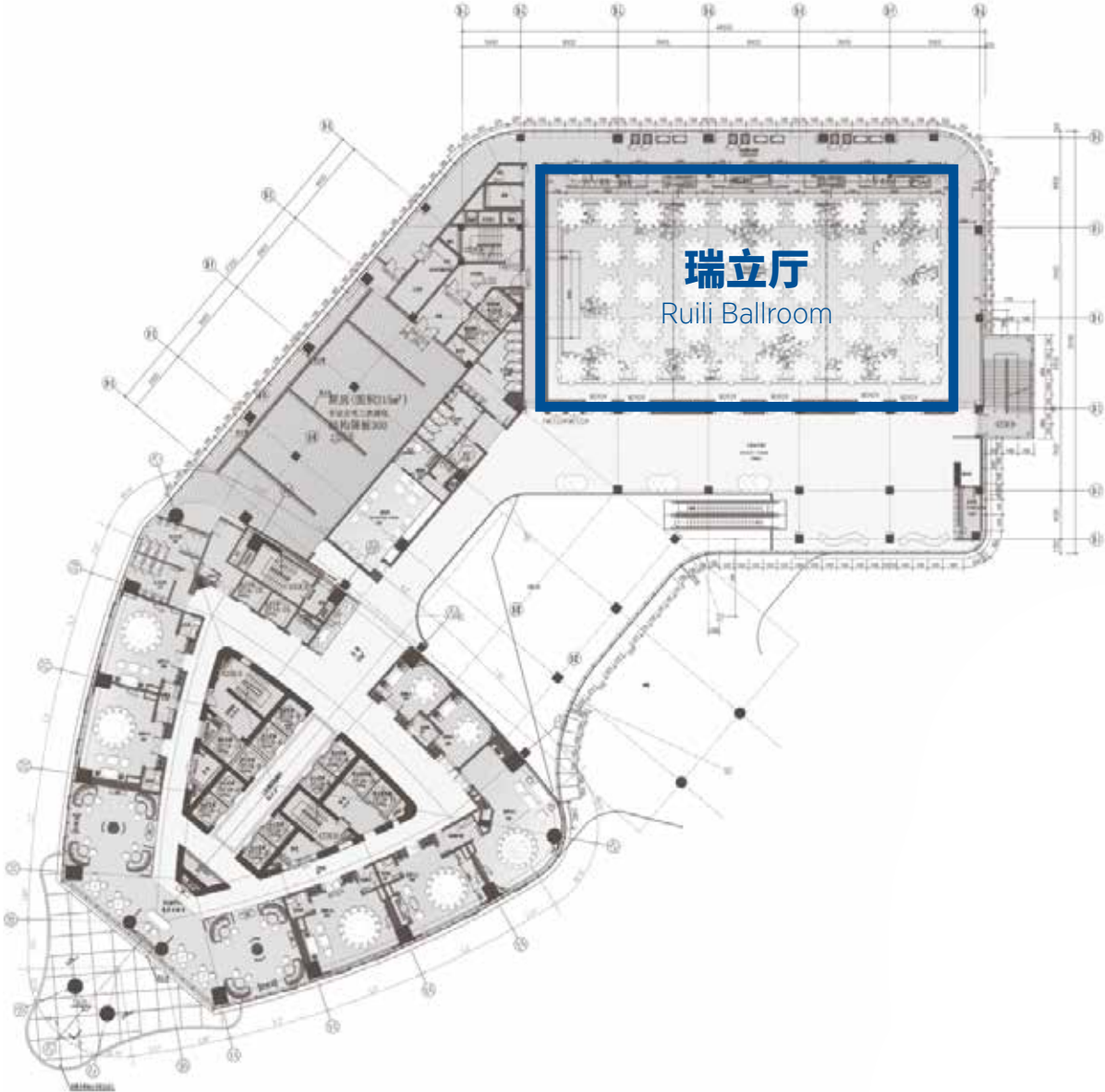
FLOOR PLAN 会场平面图

上海汽车城瑞立酒店 -2 楼 瑞立厅

Ruili Ballroom, 2F - SORL HOTEL SHANGHAI

地址：上海嘉定区安亭镇博园路 6966 号

Address: No.6966, Boyuan Road, Jiading District, Shanghai, China



EVENT-AT-A-GLANCE 会议概览

11月10日 November 10

2020 国际汽车安全与测试大会

INTERNATIONAL AUTOMOTIVE SECURITY, SAFETY & TESTING CONGRESS

9:00

欢迎致辞 WELCOME SPEECH

9:15

主旨演讲 KEYNOTE SPEECH

10:45

茶歇 TEA BREAK

11:15

专家座谈 PANEL

12:15

午餐 LUNCH

会场 A

BALLROOM A

13:30~17:20

智能驾驶系统安全技术
AUTONOMOUS DRIVING SAFETY
TECHNOLOGIES

会场 B

BALLROOM B

13:30~17:20

机械载荷工况电动汽车动力电池安全性
SAFETY OF BATTERIES IN ELECTRIC VEHICLES UNDER
MECHANICAL LOADINGS

11月11日 November 11

会场 A

BALLROOM A

9:40

信息网络安全
CYBERSECURITY

会场 B

BALLROOM B

9:40

自动驾驶功能安全 &SOTIF
AUTOMATED DRIVING FUNCTION SAFETY & SOTIF

9:00

主旨演讲 KEYNOTE SPEECH

12:00

午餐 LUNCH

15:45~16:45

专家座谈 PANEL

15:45~16:45

专家座谈 PANEL

TECHNICAL PROGRAM

November 10

Moderator: **ZHOU Qing** Professor, Tsinghua University

WELCOME SPEECH

9:00 **Billy XU** General Manager, China, SAE International

Shanghai International Automobile City

KEYNOTE

9:15 **The Integration Design of Vehicle Initiative and Passive Safety Driven by AI**

GAO Zhenhai

Dean, College of Automotive Engineering, Jilin University

Abstract

Introduce the latest research trends in automotive safety technology and focus on the new opportunities and challenges of automotive safety design driven by artificial intelligence. Combine with the latest automotive research of Jilin University, discuss the methods and engineering applications regarding theory of human protection, intelligent passive safety and integrated active-passive safety design.



10:00 **The Road to Safety for Intelligent Driving**

Ted S HUANG

CTO & Assistant President, Jiangling Motors

Abstract

Under the guidance of the "new four modernizations" strategy of automobile, intelligent driving technology has advanced by leaps and bounds and achieved rapid development. With the popularization of intelligent connected vehicle technology, the safety of intelligent driving has become more prominent. This discussion will focus on the functional safety, information security and scenario security of intelligent driving, and explore the road to safety of automotive intelligent driving under the new situation.



10:45 Tea Break

PANEL - SAFETY & SECURITY CHALLENGES UNDER TECHNOLOGICAL INNOVATION

11:15



Ted S HUANG

CTO & Assistant
President
Jiangling Motors



SUN Zhendong

Chief Expert
CATARC



Rikard Uddström

Managing Director
Zenseact China
Zenseact AB



GAO Zhenhai

Dean, College of
Automotive Engineering
Jilin University



Rainer Hoffmann

CSO
Shanghai Digauto
Automobile Technology

12:15 Lunch

会议日程

11月10日

主持人：周青 清华大学 教授

欢迎致辞

9:00 徐秉良 SAE International 中国区总经理

上海国际汽车城领导

主旨演讲

9:15 人工智能驱动下汽车主被动安全一体化设计

高振海

吉林大学 汽车工程学院院长

摘要

介绍汽车安全技术最新研究动态，并重点阐述人工智能驱动下的汽车安全设计的新机遇与新挑战，最终结合吉大汽车研究最新进展，论述真人防护、智能被动安全及主被动安全一体化设计的理论方法与工程应用。



10:00 智能驾驶的安全之路

黄少堂

江铃汽车 首席技术官兼总裁助理

摘要

在汽车新四化的引领下，智能驾驶技术突飞猛进，取得快速发展。随着汽车智能化网联化的普及，智能驾驶的安全问题也显得愈发突出。本次讨论将围绕智能驾驶的功能安全、信息安全和场景安全进行阐述，探讨新形势下的汽车智能驾驶安全之路。



10:45 茶歇

专家座谈 - 技术创新下的安全挑战

11:15



黄少堂

江铃汽车
首席技术官兼
总裁助理



孙振东

中国汽车技术研究中心
首席专家



Rikard Uddström

Zenseact AB
中国执行董事长



高振海

吉林大学
汽车工程学院院长



Rainer Hoffmann

上海测迅汽车科技
首席战略官

12:15 午餐

TECHNICAL SESSION AUTONOMOUS DRIVING SAFETY TECHNOLOGIES

Moderator: ZHU Xichan
Professor, Tongji University

TECHNICAL SESSION SAFETY OF BATTERIES IN ELECTRIC VEHICLES UNDER MECHANICAL LOADINGS

Moderator: XIA Yong
Associate Researcher, Tsinghua University

13:30 **Next Generation Intelligent
Vehicle Architecture**

WANG Xin

Executive Engineering Director,
Advanced Safety & User
Experience, Asia Pacific
Aptiv



Abstract

How to ensure the safe driving of autonomous vehicles when it comes to system failures? At the same time, with demand of intelligent connected vehicles and autonomous driving, the complexity of the electronic/electrical architecture of vehicles has reached a tipping point, which has become a bottleneck for the mass production of the next generation of intelligent connected vehicles and autonomous driving. Aptiv proposed the philosophy of intelligent vehicle architecture, which enables the overall architecture of vehicles to be extended and upgraded. It not only enables vehicles to have new functions, but also allows the software and hardware to be developed separately, unlocking new business models for the vehicle industry.

**Safety and Lightweight
of Electric Vehicles: from
the Lithium-ion Battery
Perspective**

XU Jun

Professor
UNC Charlotte



Abstract

- Background
- Motivation
- Deformation-Short circuit process
- Short circuit-Thermal runaway process
- Thermal runaway propagation process
- Conclusions



We sincerely invite you to take the survey at the conference.
Please fill in your correct contact information to receive presentation slides which authorized by the speakers. Thank you!

分论坛 智能驾驶安全技术

主持人：朱西产
同济大学 汽车学院教授

分论坛 机械载荷工况电动汽车动力电池安全性

主持人：夏勇
清华大学 副研究员

13:30 下一代智能汽车架构

王忻

安波福（中国）科技研发
有限公司
主动安全及用户体验事业部
亚太区技术总监



摘要

在系统出现问题的时候，如何保证自动驾驶汽车能够继续安全行驶？同时，随着智能网联汽车、自动驾驶等的需求，汽车的电子/电气架构的复杂程度已经达到临界点，成为智能网联汽车、自动驾驶等下一代汽车量产的瓶颈。安波福提出了智能汽车架构的理念，使汽车的整体架构可扩展、可升级，不仅可赋能汽车新功能，允许软、硬件分别开发，为汽车行业解锁新的业务模式。

电动汽车的安全性和轻量化：
从锂电池的角度看

许骏

北卡罗来纳大学夏洛特分校
教授



摘要

- 背景
- 动机
- 变形——短路过程
- 短路——热逃逸过程
- 热逃逸传播过程
- 结论

诚邀您对本次大会进行评估。
请您务必填写正确联系方式，以便收到演讲嘉宾授权的 PPT。



AUTONOMOUS DRIVING SAFETY TECHNOLOGIES

SAFETY OF BATTERIES IN ELECTRIC VEHICLES UNDER MECHANICAL LOADINGS

14:00

Ensuring a Safe Automated Driving – Design and Online Improvements

WANG Haowei

Chief System Architect
Freetech



Abstract

- Basic factors to ensure a safe automated driving
- A Safety-driven architecture design
- Safe driving strategy & clear ODD definition
- Online improvements and crowd-sourcing

An Integrated Approach to Battery Safety

Ian Hanna

Senior Manager System Safety
General Motors



Abstract

The integrated vehicle design process at General Motors has been developed over three generations of electric vehicles. Through our global programs we have found an integrated approach to battery vehicle design is required to achieve the stringent safety requirements our customers expect. The integrated solution distributes safety requirements across all levels of the vehicles and ensures the most cost and mass efficient design while increasing safety. The increased safety is achieved when all levels of the vehicle (systems and components) and organization (functional alignment) play a part in reaching our safety goals.

14:30

Building a Virtual Real World with Mobility Big Data

WU Xiaoyu

Principal of Technical Standard
Didiglobal



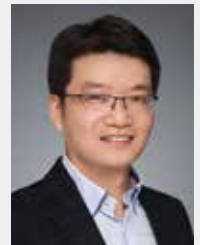
Abstract

This report introduces how Didi makes use of “Jishi” device to collect road data to study various scenarios for autonomous driving, and transforms the hierarchical classification approach for analyzing scenarios into the one that the function demand guides the function development. The project vision is to regenerate a virtual real world for training and testing the autonomous driving ability, as well as for enhancing and evaluating its safety.

Safety Consideration and Application of Swappable Battery System

YANG Yong

Deputy Director, Battery System
NIO



Abstract

- Challenge of Swappable Battery
- NIO Battery Safety Design - Mechanical to Digital

15:00

Tea Break

分论坛 智能驾驶安全技术

14:00

护航安全自动驾驶 – 系统设计与持续改进

汪浩伟

福瑞泰克智能系统有限公司
架构总师



摘要

- 保障安全自动驾驶的基本要素
- 安全驾驶架构设计
- 安全驾驶策略与清晰的 ODD 定义
- 在线持续改进与众包

分论坛 机械载荷工况电动汽车动力电池安全性

电池安全性的综合方法

Ian Hanna

通用汽车
安全系统高级经理



摘要

通用汽车公司的集成车辆设计流程已经开发了三代电动车。通过我们的全球项目，我们找到了一种一体化的方法来设计电池汽车，以达到我们的客户所期望的严格的安全要求。该集成解决方案将安全要求分布在所有级别的车辆，并确保成本和大规模高效率的设计，同时增加安全。当车辆的各个级别（系统和组件）和组织（功能）在使用我们的安全目标时发挥作用，安全系数就会提高。

14:30

出行大数据构建虚拟的真实世界

武晓宇

滴滴自动驾驶
技术标准负责人



摘要

介绍滴滴是如何利用“桔视”采集的路面数据来研究自动驾驶需要应对各类场景，形成分析场景分级分类方法转化为功能需求指引功能开发。项目愿景是还原出一个虚拟真实世界，用于训练和测试自动驾驶能力，并可应用于提升与评估其安全性。

可换电电池包系统的安全考虑与应用

杨勇

蔚来
电池系统部副总监



摘要

- 可换电电池包的挑战
- NIO 电池安全设计 - 机械到数字

15:00

茶歇

AUTONOMOUS DRIVING SAFETY TECHNOLOGIES

15:20

Veoneer L3 Automated Driving Feature - TJP

Yolanda LI

Program Director, FuSa
Department Head
Veoneer



Abstract

- Veoneer Company Introduction
- TJP Function Introduction
- TJP Functional Safety Development

SAFETY OF BATTERIES IN ELECTRIC VEHICLES UNDER MECHANICAL LOADINGS

Orientation Related Impact Risks of Traction Batteries and the Protection Designs

XIA Yong

Associate Research Fellow
Tsinghua University



Abstract

Configuration of single battery cell and layout of cells inside a battery module determine the significant difference of mechanical responses along different orientations at both cell and module level. The present study focuses on the internal deformation and failure modes of battery cells subjected to indentation loads along different directions. The observations strongly support identification of the orientation-dependent deformation tolerance of batteries. Furthermore, the structural deformation and fracture at module level are analyzed as well as the thermal runaway risks induced by mechanical abuse. A few suggestions for protective structural design of battery module are accordingly proposed.

15:50

Data Replay - Bridging the Gap between Real World Tests and Simulation

Andreas Gau

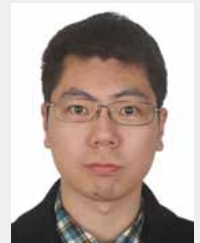
Sales Manager
dSPACE



Discussion on the Countermeasures of Battery Sudden Death

FENG Xuning

Assistant Professor
Tsinghua University



Abstract

- The mechanism of the Li-ion battery failure
- The sudden death of Li-ion battery
- Discussion on the cause of battery sudden death
- Discussion on the countermeasures of battery sudden death

分论坛 智能驾驶安全技术

15:20

维宁尔 L3 自动驾驶特性——TJP

Yolanda Li

维宁尔（中国）电子有限公司
项目总监、FuSa 部门负责人



摘要

- 维宁尔公司简介
- TJP 功能简介
- TJP 功能安全发展

分论坛 机械载荷工况电动汽车动力电池安全性

方向相关的动力电池碰撞风险及防护设计

夏勇

清华大学
车辆与运载学院副研究员



摘要

电池单体构型以及成组形式都决定了在单体和模组层级的力学响应具有显著的方向差异，本研究深入分析了不同方向挤压载荷下的电池单体内部变形和失效模式，为确定电池多方向变形容限提供了依据。进一步分析了模组各方向挤压的结构变形破坏特征以及热失控风险，对模组的保护结构设计提供了建议。

15:50

数据回放——连接真实世界测试和仿真的桥梁

高安迪

德斯拜思机电控制技术(上海)
有限公司
销售经理



突然死亡型电池热失效难题及应对策略讨论

冯旭宁

清华大学
助理教授



摘要

- 电池热失效机理概述
- 突然死亡型电池热失效难题
- 突然死亡型电池热失效形成原因讨论
- 突然死亡型电池应对策略讨论

AUTONOMOUS DRIVING SAFETY TECHNOLOGIES

16:20

Automotive Cybersecurity - Get a Grip on the Dark World

ZHU Xiaoyue

AES GC BDM
Keysight Technologies



Abstract

With the deeper implementation of smart, connected car, automotive cybersecurity challenges are standing out. In this presentation, we will cover the status and challenges of automotive cybersecurity and describe how Keysight is helping the industry with this.

SAFETY OF BATTERIES IN ELECTRIC VEHICLES UNDER MECHANICAL LOADINGS

Safety Behavior of Lithium-ion Battery and Anode Material under Mechanical Abuse Loading

WANG Lubing

Associate Professor
Ningbo University



Abstract

- Experimental study on component materials
- Computational model of component materials
- Experimental study on battery cell
- Detailed model of battery cell
- Internal short-circuit criteria

16:50

Are 240 Million Test Kilometers Sufficient to Ensure the Safety of Autonomous Vehicles?

Rainer Hoffmann

CSO
Shanghai Digauto Automobile
Technology



Abstract

- Where do we come from? 60 years of Automotive Safety
- Our goal: Vision Zero
- Our tools: Simulation and Testing

Ansys Simulation Helps Battery Safety Design

JING Wenming

CFD Expert
Ansys China



Abstract

- Ansys battery simulation overall solution
- Ansys' application in battery safety design



We sincerely invite you to take the survey at the conference.
Please fill in your correct contact information to receive presentation slides which authorized by the speakers. Thank you!

分论坛 智能驾驶安全技术

16:20 汽车网络安全测试挑战

祝晓悦

是德科技（中国）有限公司
汽车与能源事业部大中华区业务拓展经理



摘要

随着汽车网联化、智能化的趋势逐步深入，汽车网络安全问题也越发凸显。本次演讲将围绕汽车网络安全的现状、挑战展开，并阐述是德科技在其中扮演的角色以及对行业的助力。

16:50 2.4 亿的测试公里能否确保自动驾驶的安全？

Rainer Hoffmann

上海测迅汽车科技有限公司
首席战略官



摘要

- 何处起步？汽车安全走过的一个甲子
- 我们的目标：零的愿景
- 我们的工具：模拟和测试

分论坛 机械载荷工况电动汽车动力电池安全性

锂电池单体及负极材料在机械滥用载荷下的安全行为研究

王璐冰

宁波大学
副教授



摘要

- 组分实验研究
- 组分数值计算模型
- 单体实验研究
- 单体精细化模型
- 短路判据

Ansys 仿真助力电池安全设计

井文明

Ansyes 中国
CFD 专家



摘要

- Ansys 电池仿真整体解决方案
- Ansys 在电池安全设计方面的应用

诚邀您对本次大会进行评估。
请您务必填写正确联系方式，以便收到演讲嘉宾授权的 PPT。



SAE ARP1384D™ Recommended Practice
Passenger Safety Briefing Materials

SAE AS8017D™ Standard
Minimum Performance for Anticollision Light Systems

SAE AIR5909™ Report
Prognostic Metrics for Engine Health Management Systems

SAE ARP5366™ Recommended Practice
Autopilot, Flight Director, and Autothrust Systems

SAE AS6296™ Standard
Electronic Flight Instrument System (EFIS) Displays

SAE AS8037C™ Standard
Minimum Performance Standard for Aircraft Position Lights

SAE ARP876F™ Recommended Practice
Gas Turbine Jet Exhaust Noise Prediction

SAE AS8006A™ Standard
Minimum Performance Standard for Pitot and Pitot-Static Probes

SAE AIR6127™ Report
Managing Higher Voltages in Aerospace Electrical Systems

SAE AIR5909™ Report
Prognostic Metrics for Engine Health Management Systems

SAE ARP5583A™ Standard
Guide to Certification of Aircraft in a High Intensity Radiated Field (HIRF) Environment

SAE ARP5724™ Recommended Practice
Testing of Electromechanical Actuators, General Guidelines

SAE J2735™ Standard
Library of message set to be used by DSRC applications

SAE J3161™ Standard
Requirements for LTE V2X V2V Safety communications

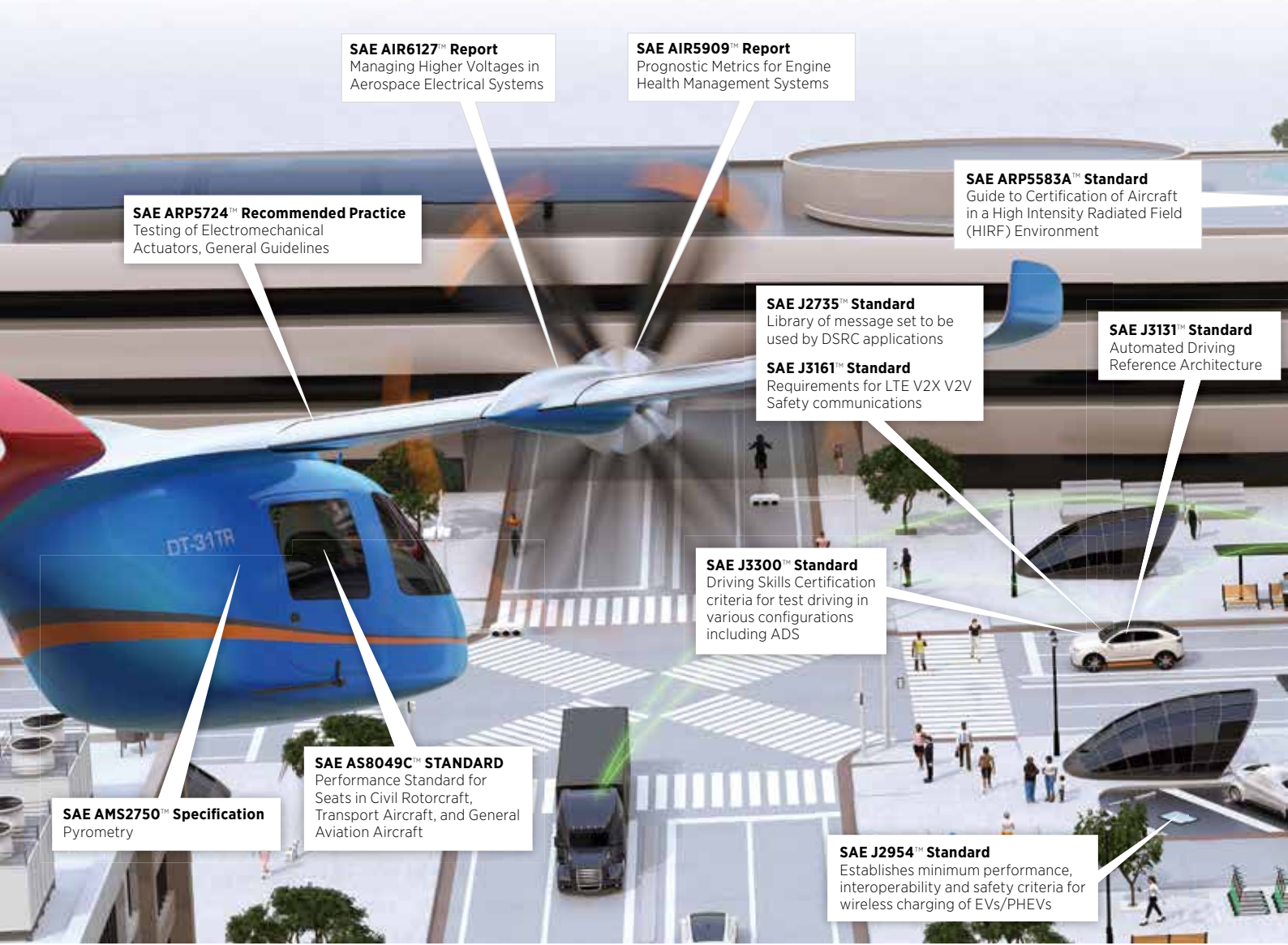
SAE J3131™ Standard
Automated Driving Reference Architecture

SAE J3300™ Standard
Driving Skills Certification criteria for test driving in various configurations including ADS

SAE AS8049C™ STANDARD
Performance Standard for Seats in Civil Rotorcraft, Transport Aircraft, and General Aviation Aircraft

SAE AMS2750™ Specification
Pyrometry

SAE J2954™ Standard
Establishes minimum performance, interoperability and safety criteria for wireless charging of EVs/PHEVs

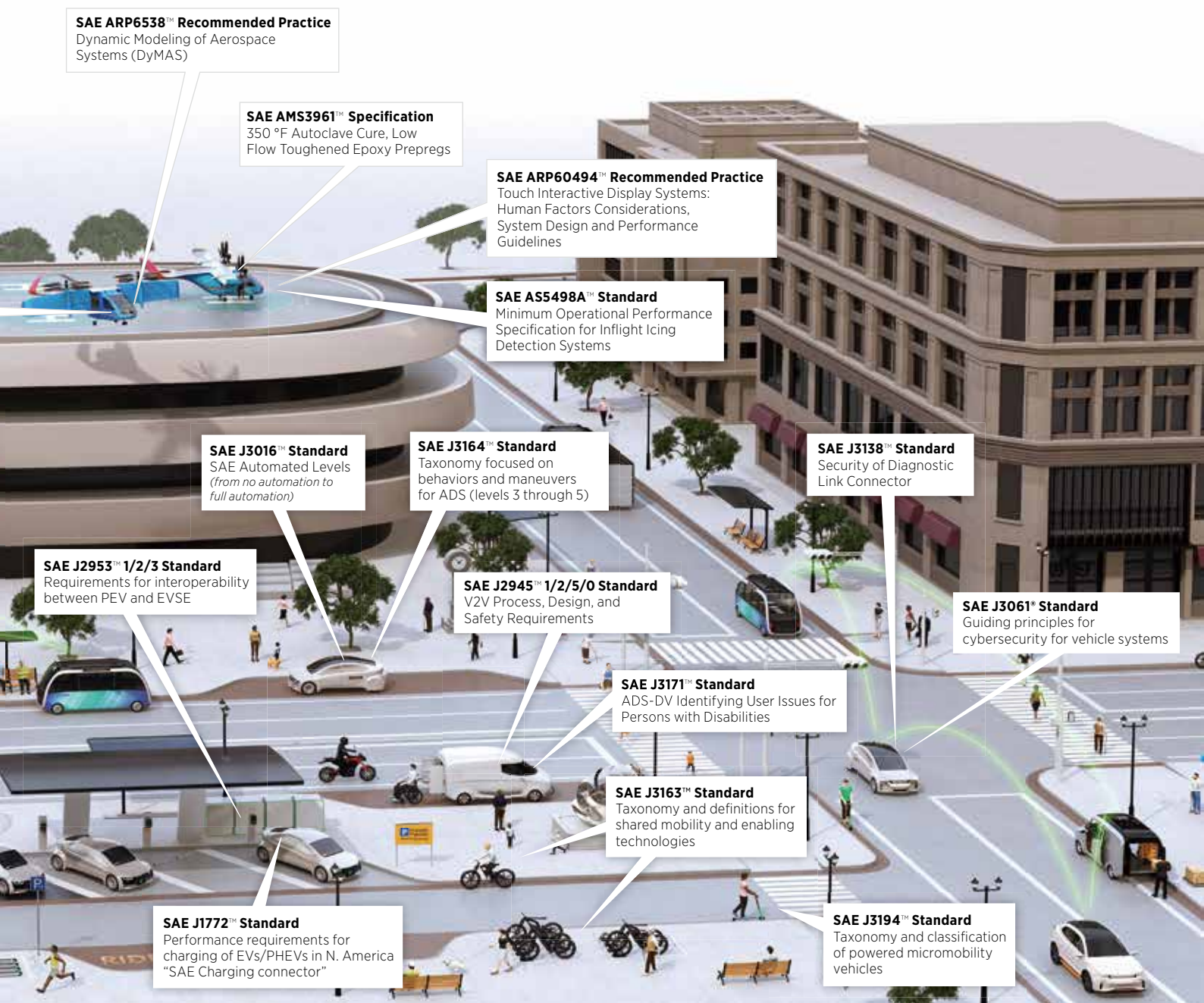


Ground Vehicle

8,500+
Active Standards

Aerospace

32,000+
Active Standards



SAE ARP6538™ Recommended Practice
Dynamic Modeling of Aerospace Systems (DyMAS)

SAE AMS3961™ Specification
350 °F Autoclave Cure, Low Flow Toughened Epoxy Prepregs

SAE ARP60494™ Recommended Practice
Touch Interactive Display Systems: Human Factors Considerations, System Design and Performance Guidelines

SAE AS5498A™ Standard
Minimum Operational Performance Specification for Inflight Icing Detection Systems

SAE J3016™ Standard
SAE Automated Levels (from no automation to full automation)

SAE J3164™ Standard
Taxonomy focused on behaviors and maneuvers for ADS (levels 3 through 5)

SAE J3138™ Standard
Security of Diagnostic Link Connector

SAE J2953™ 1/2/3 Standard
Requirements for interoperability between PEV and EVSE

SAE J2945™ 1/2/5/0 Standard
V2V Process, Design, and Safety Requirements

SAE J3061™ Standard
Guiding principles for cybersecurity for vehicle systems

SAE J3171™ Standard
ADS-DV Identifying User Issues for Persons with Disabilities

SAE J3163™ Standard
Taxonomy and definitions for shared mobility and enabling technologies

SAE J1772™ Standard
Performance requirements for charging of EVs/PHEVs in N. America "SAE Charging connector"

SAE J3194™ Standard
Taxonomy and classification of powered micromobility vehicles

TECHNICAL PROGRAM

November 11

KEYNOTE

9:00 **UL 4600 Key Ideas**

Philip Koopman

Associate Professor, Carnegie Mellon University
Co-Founder & CTO, Edge Case Research

Abstract

Overview of the key ideas and practical application of 4600 for self driving cars, including:

- Key principles for building a safety case and applying the standard
- Scope of the standard, from fault models to safety culture
- How metrics and feedback loops tie everything together
- How the 4600 approach complements other safety standards
- How to join the community already contributing to the next version



TECHNICAL SESSION CYBERSECURITY

Moderator: LIU HONG
CTO, TICPSH

TECHNICAL SESSION AUTOMATED DRIVING FUNCTION SAFETY & SOTIF

Moderator: DONG Hao
Director of Automotive Electronic Safety
TSARI, Tsinghua University

9:40 **Rebuild Vehicle Safety System**

LI Muxi

Information Security Supervisor
FAW Intelligent Network R&D
Institute



Abstract

- Revolution of safety system
- New challenges for vehicle information security
- Implementation and planning of vehicle information security
- Trend of integrating the multi-system security
- Summary

Study of Future Autonomous Driving Safety Platform of ISO26262 and SOTIF

PANG SUNG HOON

Functional Safety Expert
Huawei TTE Lab



Abstract

- Background & Purpose
- Deviation of ISO26262 and SOTIF
- Platform of ISO26262 and SOTIF
- Result of AD L3 system Study in Platform
- Conclusion & Next plan

会议日程

11月11日

主旨演讲

9:00 **UL 4600 核心理念**

Philip Koopman

卡耐基梅隆大学 副教授

Edge Case Research 联合创始人、首席技术官

摘要

UL 4600 自动驾驶汽车安全标准核心观点以及实际应用的概述，包括：

- 构建安全案例和应用标准的关键原则
- 标准范围，从故障模型到安全文化
- 指标和反馈回路如何将所有内容结合在一起
- UL 4600 安全标准是如何对其他安全标准进行补充的
- 如何进一步为社区作出贡献



分论坛

信息网络安全

主持人：刘虹

上海工业控制安全创新科技有限公司
首席技术官

分论坛

自动驾驶功能安全 & SOTIF

主持人：董浩

清华大学苏州汽车研究院
汽车电子安全所所长

9:40 **重构汽车安全体系**

李木犀

中国一汽智能网联开发院
信息安全设计主管



摘要

- 安全体系的变革
- 车辆信息安全新挑战
- 车辆信息安全的实施和规划
- 多安全融合趋势
- 总结

**未来自动驾驶安全平台
ISO26262 和 SOTIF 的研究**

方成熏

华为 2012 实验室
功能安全专家



摘要

- 背景 & 目的
- ISO26262 和 SOTIF 的误差
- ISO26262 平台和 SOTIF 平台
- 平台上 AD L3 系统研究结果
- 结论和下一步规划

CYBERSECURITY	AUTOMATED DRIVING FUNCTION SAFETY & SOTIF
---------------	---

10:10

Look into CCC Standard Digital Key Security

Jhenukumar Subramaniam

Vehicle Security Engineer
Geely Research Institute



Autonomous Driving FuSa & SOTIF

Namdeo Gaikwad

Expert Functional Safety
NIO



Abstract

- Operating modes in Autonomous driving
- ASIL decomposition to insure availability
- Analysis, root cause & design
- Root cause verification & Validation

10:40

Tea Break

11:00

Smart Car's Black Box

LIN Wancai

General Manager
Duvonn Electronic Technology Co., Ltd.



Abstract

This report introduces the rigid demand of intelligent vehicles, IOV, autonomous driving application on the data physical security pain points, data authentication and credible analysis of all-round running recorder (smart car's black box). It also introduces safety protection requirements, performance indications and foundation, data authentication method, and credible analysis process for the data stored in the recorder under the disastrous conditions.

This report explains that the safely stored credible data records can provide basic data support for the definition of liability for vehicle accidents, the search for accident causes, the recurrence of the scenarios, the analysis of software risks, the improvement of software performance, as well as provide detailed communication data records for analyzing the route of hacker attacks and attacking methods.

This report analyzes the development of the international, national and industrial standards of recorders in the field of passenger vehicles and public transportation. It also analyzes the R&D, product, and standard establishment of Special Technology Committee of China Automobile Recorders and Duvonn.

System Safety Approach for Challenge in Autonomous Driving

QU Yuanning

Senior Engineering Manager for Safety & Security CoC Chassis System Control
Bosch Automotive Co.(Suzhou)



Abstract

ADAS function is now more and more popular in market and make the driving experience better and better, but meanwhile also cause several accident. System Safety is being more and more important for ADAS function development in such situation, especially as the base for future fully automated Driving. Functional Safety, SOTIF and Cyber Security protect the vehicle from different aspects of safety, and how to integrate them together to work for a safety system is the challenge for us. What is the general approach for the BOSCH in Safety and Security area incl. SOTIF?

分论坛 信息安全

10:10

查看 CCC 标准数字密钥安全

Jhenukumar Subramaniam

吉利汽车研究开发有限公司
汽车信息安全工程师



分论坛 自动驾驶功能安全 & SOTIF

自动驾驶 FuSa 和 SOTIF

Namdeo Gaikwad

蔚来
功能安全专家



摘要

- 自动驾驶的操作模式
- 汽车完整性等级 (ASIL) 分解确保可用性
- 分析、根本原因 & 设计
- 根本原因验证和确认

10:40

茶歇

11:00

智慧汽车之车用黑匣子

林万才

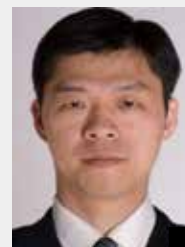
江苏都万电子科技有限公司
总经理



针对自动驾驶难点的系统安全方法

曲元宁

博世苏州底盘事业部
功能安全和网络安全能力中心
高级经理



摘要

介绍智慧汽车、车联网、自动驾驶应用对全方位行驶记录仪（汽车黑匣子）的数据物理安全痛点、数据认证和可信分析的刚性要求，以及对记录仪存储数据在灾难条件下的安全防护要求、性能指标及依据、数据认证方法和记录可信分析流程。

说明安全存储的可信数据记录将对车辆事故责任界定、事故原因查找、场景重现、软件隐患分析、软件性能改进提供基础数据支撑，以及为车联网黑客攻击路线、攻击方法分析提供详尽的通信数据记录。

分析乘用车和公共交通领域的记录仪国际、国家、行业标准发展状况、未来市场需求，以及中国汽车记录仪专业技术委员会和 Duvonn（都万电子）在这个领域的研发、产品、标准制定等工作。

摘要

目前 ADAS 功能在市场上非常流行，他们便利了我们的生活，同时也由此引发了相关的一些事故。由此，系统安全已经成为一个越来越重要的关注点，尤其其它还是未来自动驾驶的一个基石。功能安全，预期功能安全和信息安全从不同维度守护我们的车辆安全，如何很好的运用他们并将他们融合在一起为我们的安全服务是目前的一个挑战。

	CYBERSECURITY		AUTOMATED DRIVING FUNCTION SAFETY & SOTIF
11:30	<p>Empower HPC with Security - Challenges and Solutions</p> <p>MA Bo VNI Security & Safety RD Lead (Asia) Continental Automotive</p>  <p>Abstract</p> <ul style="list-style-type: none"> • Development prospects of vehicle-mounted high-performance computing platforms • Security challenges faced by vehicle-mounted high-performance computing platforms • Security solutions and applications for vehicle-mounted high-performance computing platforms 		<p>Building a Safety Integrated System</p> <p>YANG Xuezh Functional Safety Director FAW Intelligent Connected Vehicle Development Institute</p>  <p>Abstract</p> <ul style="list-style-type: none"> • Evolution of vehicle safety system • New challenges for vehicle's functional safety • Implementation and planning of vehicle functional ssafety • Safety integration trends and cases • Summary
12:00	Lunch		
13:30	<p>Mastering UNECE.WP29</p> <p>LU Xingwang ESCRYPT China Responsible ETAS Automotive Technology (Shanghai) Co., Ltd</p>  <p>Abstract</p> <p>The recently released UN regulations on cybersecurity and software updates for connected vehicles provide automakers with clearly defined performance and audit requirements for IT security and software updates for vehicles. The regulations require specific measures to be taken in the areas of management of cyber risks for vehicles, security design along the value chain, intrusion detection and fleet protection, and provision of secure software updates. The presentation will explain, how the requirements can be addressed in a systematic manner.</p>		<p>Introduction of ISO TR 4804</p> <p>WANG Yali Safety Manager Baidu</p>  <p>Abstract</p> <p>ISO TR4804: Road vehicles – Safety and cybersecurity for automated driving systems – Design, verification and validation</p> <ul style="list-style-type: none"> • ISO TR4804: overall framework introduction • Deep learning security • ISO TR4804 next step plan



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分论坛 信息网络安全

11:30 提升 HPC 的安全性 - 挑战与解决方案

马博

德国大陆汽车电子
车联网及信息事业部
亚洲区安全技术研发主管



摘要

- 车载高性能计算平台发展前景
- 车载高性能计算平台面临的安全挑战
- 车载高性能计算平台安全解决方案和应用

分论坛 自动驾驶功能安全 &SOTIF

安全融合体系的构建

杨雪珠

中国一汽智能网联开发院
功能安全设计主任



摘要

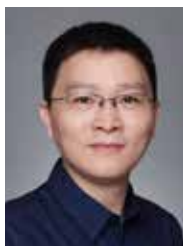
- 车辆安全体系的演变
- 汽车功能安全新挑战
- 汽车功能安全的实施和规划
- 安全融合趋势及案例
- 总结

12:00 午餐

13:30 全面掌握 UNECE.WP29

卢星旺

易特驰汽车技术（上海）有限公司
ESCRYPT 中国区负责人



摘要

最近联合国发布的关于信息安全和互联汽车软件更新的规定，明确定义了关于 IT 安全和汽车软件更新的性能和审计要求。这些规定要求在管理汽车信息风险、价值链中的安全设计、入侵监测、车队保护和提供安全软件更新等方面中采取必要的措施。本次演讲将会讲解这些要求如何在系统中实现。

ISO TR 4804 介绍

王亚丽

百度
安全经理



摘要

ISO TR4804: Road vehicles - Safety and cybersecurity for automated driving systems - Design, verification and validation 是基于《自动驾驶 安全第一》白皮书演进的规范，是 ISO 第一个专门针对自动驾驶的应用安全标准。

- ISO TR4804 整体框架介绍
- 深度学习安全
- ISO TR4804 下一步计划

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请您务必填写正确联系方式，以便收到演讲嘉宾授权的 PPT。



CYBERSECURITY

AUTOMATED DRIVING FUNCTION SAFETY & SOTIF

14:00

ISO/SAE 21434 Vs. ISO 26262 – Functional Safety Vs. Cyber Security Regulations & Engineering

Peter ZHAO

DEKRA China Functional Safety Director
DEKRA



Abstract

According to the new release of the UNECE WP.29 CSMS regulations, both technical experts and management from automotive industry are both facing new challenges to combine functional safety & cyber security design all together via reasonable approach. Our presentation focus on how to meet the new CSMS regulations and how manage the holistic design approach to both cover functional safety & cyber security topics.

Safety - challenges to autonomous Driving

Lily ZHANG

Functional Safety Manager
Zenseact AB



Abstract

- Zenseact is providing safety critical SW
- Unsupervised automation is really hard because reality is so complex.
- How safe is enough?
- Start in the so called small operational design Domain
- Machine in the background with data probing and software over the air updates
- ODD expansion strategy
- Agile development and component-based safety argument

14:30

Zonal E/E Architecture – Challenges and Opportunities

Idan Nadav

Chief Science Officer
GuardKnox Cyber Technologies



Abstract

An overview of the technological challenges in transition to a Zonal E/E Architecture and the new business opportunities it enables.

Functional Safety Strategies for Onboard Intelligent Calculation Platform

WU Dandan

Head of Functional Safety
CICV Intelligent Control (Beijing) Technology Co., Ltd.



Abstract

- Risks and challenges faced by the functional security of the basic platform of on-board intelligent computing;
- The security design for heterogeneous distributed hardware platform that meets the demand on computing power and function safety;
- Protection strategies for functional safety of autonomous driving OS software with multiple monitoring;
- Build a complete function safety analysis system based on system thinking;
- Reduce the interference of uncertain factors and improve the functional safety of the platform based on safety evaluation rules.

分论坛 信息网络安全

14:00

网络安全设计合规：ISO/SAE 21434 网络安全 Vs. ISO 26262 功能安全设计要求

赵欣

德凯集团
道路车辆功能安全事业部
中国区总监



摘要

在 ISO26262 功能安全在业内已经广泛推广的大背景下，汽车电子设计和测试的从业人员又迎来了全新的汽车电子网络安全设计要求和相关法规 (ISO/SAE 21434 标准和 UNECE WP.29 CSMS 强制法规)，本次演讲探讨功能安全和网络安全设计开发的核心要点，融合开发与融合测试，以及相关网络安全强制法规的合规要求等业内广泛关注的话题！

14:30

区域电气电子架构 - 挑战与机遇

Idan Nadav

GuardKnox Cyber
Technologies
首席科学官



摘要

向区域电气电子架构转变的过程中遇到的技术挑战及相关机遇。

分论坛 自动驾驶功能安全 &SOTIF

安全 - 自动驾驶的挑战

张蕾

Zenseact AB
功能安全经理



摘要

- Zenseact 提供安全关键软件
- 无监督的自动化是非常困难的，因为现实是如此复杂
- 如何安全就足够了？
- 从所谓的小型 ODD 开始
- Machine 在后台进行数据探测和软件无线更新
- ODD 扩张策略
- 敏捷开发与基于组件的安全论证

车载智能计算基础平台的功能安全策略

吴丹丹

国汽智控 (北京) 科技有限公司
功能安全总监



摘要

- 车载智能计算基础平台功能安全面临的风险与挑战；
- 兼顾算力与功能安全要求的异构分布硬件平台安全设计；
- 多重监控的自动驾驶 OS 软件功能安全防护策略；
- 基于系统思维构建完善的功能安全分析体系；
- 基于安全评价规则降低不确定因素干扰，提高平台功能安全。

	CYBERSECURITY		AUTOMATED DRIVING FUNCTION SAFETY & SOTIF
15:00	<p>Road Vehicles Cybersecurity</p> <p>Mustafa Saed Cyber Security Manager Hyundai</p>  <p>Abstract The presentation will summarize the ISO/SAE DIS 21434 to make understandable and clear to the audience.</p>		<p>Functional Safety in Restrain Control System</p> <p>Matt CAI RCS Design Leader Manager Veoneer China</p>  <p>Abstract</p> <ul style="list-style-type: none"> • Functional Safety in Restrain Control System • Functional Safety Development Process and Safety Culture

15:30 Tea Break

	PANEL SOFTWARE DEFINED VEHICLES SECURITY TECHNOLOGY DEVELOPMENT TREND	PANEL DISCUSSION OF SEVERAL AUTONOMOUS DRIVING SAFETY CRITICAL PROBLEMS
15:45	<p>Moderator: LIU HONG CTO, TICPSH</p>  <p>HUANG Jianzhong Senior Manager of Security Management and Standardization SAIC Motor</p>  <p>HOU Xintian Platform Manager CATARC</p>  <p>LUO Feng Professor Tongji University</p>  <p>Peter ZHAO DEKRA China Functional Safety Director DEKRA</p>	<p>Moderator: ZHANG Yuxin Associate Professor State Key Laboratory of Automotive Simulation and Control, Jilin University</p>  <p>Bentley LIN Managing Director Exida Safety Systems (Shanghai) Co., Ltd</p>  <p>WANG Yali Safety Manager Baidu</p>  <p>BIAN Jun Senior Manager SAIC Motor</p>  <p>Namdeo Gaikwad Expert Functional Safety NIO</p>

分论坛 信息安全	分论坛 自动驾驶功能安全 & SOTIF
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15:00 **道路车辆网络安全**
Mustafa Saed
 现代汽车
 网络安全经理



摘要
 该演讲将对 ISO/SAE DIS 21434 进行总结，以便听众理解。

功能安全在约束控制系统中的应用
蔡铭
 维宁尔（中国）电子有限公司
 被动安全设计主管经理



摘要

- 功能安全在约束控制系统中的应用
- 功能安全开发流程探讨

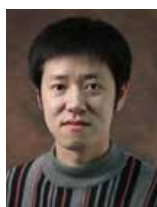
15:30 茶歇

专家座谈 软件定义汽车安全技术发展趋势

专家座谈 自动驾驶安全关键问题探讨

15:45 **主持人 刘虹**
 上海工业控制安全创新科技有限公司
 首席技术官

主持人：张玉新
 吉林大学汽车仿真与控制国家重点实验室
 副教授



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 上汽集团
 安全体系标准管理
 高级经理



侯昕田
 中汽研软件测评（天津）有限公司
 平台经理



林誉森
 雅析安全系统（上海）有限公司
 执行董事



边俊
 上汽集团
 高级经理



罗峰
 同济大学
 教授



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 道路车辆功能安全事业部
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江苏都万电子科技有限公司是一家专注于研发生产数据安全存储设备的高新技术企业。我公司自主研发的灾备数据存储器和汽车黑匣子尤其适用于火车、客车、危化品车、自动驾驶车辆、新能源车以及无人机等对存储数据的物理防护需求较高的场所。

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江苏都万一直坚持初衷,专注于数据安全领域,为还原事故真相、灾难原因分析、智能网联车辆数据采集以及为未来汽车性能改进等方面提供可靠稳定的数据支持。

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Address 6F, Bldg.5, Jingang Hi-Tech Pioneer Park, Kechuang Road, Nanjing, China.

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Duvonn Electronic Technology Co., Ltd. which was established in 2013 is dedicated to R&D of fireproof crash-protected event recorder memory module & vehicle black box.

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以下赞助商企业信息由赞助以及参展公司提供。



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FORUM8 公司创业以来以软件包开发技术为基础,以结构物设计为首,提供支援土木、建筑设计的软件、技术服务。近年来随着虚拟现实的开发,应用范围延伸到包括交通、汽车研发等更广泛的项目领域。

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Since the company's foundation, FORUM8 have been providing software and technical services that support civil engineering and chitectural/structural design. Our recent developments in Virtual Reality software have lead to any new applications especially those in traffic and automobile research. In fact, FORUM8's VR technology is being utilized in those researches and indeed just about any type of project.

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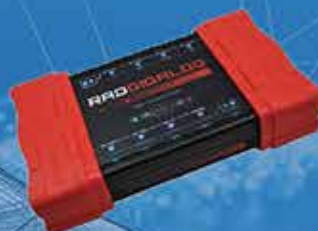
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