Automotive Cockpit HMI

USA

Automated Drive – UX/User Experience - Driver Distraction – Multi-Modal HMI Solution – Connectivity Solutions – Usability

19 – 21 April 2016 | Sheraton Hotel Ann Arbor, MI, USA

www.automotive-hmi-usa.com/MM
AT A GLANCE

Hard Facts
- Meet 20+ speakers
- 3 full days with more than 35 technical sessions
- Over 5 hours of facilitated networking

Key topic areas 2016
- Automated Drive
- UX/User Experience
- Driver Distraction
- Multi-Modal HMI Solution
- Connectivity Solutions
- Usability

Co-located with

AUTOMOTIVE VISUAL AND DISPLAY TECHNOLOGIES USA

Learn from these leading experts amongst others:

Paolo Malabuyo,
Director UX Design,
Netflix Inc., USA

Eric Traube,
Senior Engineer/Technical Lead,
National Highway Traffic Safety Administration (NHTSA), USA

Christopher Andrews,
Leader of Emerging Technologies,
Visteon Corporation, USA

Trent Victor,
Senior Technical Leader Crash Avoidance,
Volvo Car Corporation, Sweden

Yi Glaser,
HMI Engineer,
General Motors, USA

Steven Feit,
Manager / Chief Engineer,
Honda R&D Americas, Inc., USA
Socionext Embedded Software Austria GmbH is a leading HMI tool provider and development partner for worldwide automotive, industrial, and telecommunication customers. SESA supports its customers with the CGI Studio tool environment as well as provision of software services mainly in the areas of HMI development and embedded software. For more information, visit www.cgistudio.at.

Trilumina and eyeSight present advanced driver assistance systems with robust, user-aware, machine vision interfaces and high-efficiency, dynamic in-cabin scanning illumination technology.

OPTIS, the virtual prototyping company, brings life and emotion to all industrial projects. Its world-leading solutions pave the way for a revolutionary design process: towards zero physical prototypes. Since 1989, OPTIS has been the world leading software editor for the scientific simulation of light and human vision, coupled with famous CAD/CAM software and dedicated virtual immersive solutions. This synergy creates true-to-life virtual mockups which are used as real decision-making tools allowing designers, ergonomists and engineers to simulate and optimize lighting performance, product appearance, as well as the visibility and legibility of information on Human Machine Interfaces, in a fully-immersive environment.

OPTIS solutions enhance the accuracy & realism of 3D virtual prototyping. OPTIS solutions offer the chance to really understand physical data, to interact with it and to foster communication between designers, manufacturers, trainers, marketers and senior management. Today, more than 2500 clients in over 50 countries already trust OPTIS and innovate day after day with our solutions to ensure the look and safety of their designs, reduce their ecological footprint and bring their future products to the market faster.
More speakers you’ll meet in Detroit:

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<td>Product Management, HMI Expert</td>
<td>Continental Automotive Systems, USA</td>
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<td>Joel M Cooper</td>
<td>Research Assistant Professor, Psychology Department</td>
<td>University of Utah, USA</td>
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<tr>
<td>Jonathan Dobres, PhD</td>
<td>Research Scientist</td>
<td>MIT AgeLab, USA</td>
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<td>Technical Expert and Human Factors Specialist</td>
<td>Ford Motor Company, USA</td>
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<td>Richard Young</td>
<td>Research Professor, School of Medicine and College of Engineering</td>
<td>Wayne State University, USA</td>
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<td>Warren Schramm</td>
<td>Director of Technology</td>
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<td>Dr. Paul Pangaro</td>
<td>Professor and Chair of MFA iXD Program</td>
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<td>Hakan Kostepen</td>
<td>Executive Director - Product Planning and Strategy &amp; Innovation</td>
<td>Panasonic Automotive Systems Company of America, USA</td>
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<td>Nippon Seiki International, USA</td>
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<td>Dietrich Manstetten</td>
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<td>Group Leader, Connected and Advanced Vehicle Systems</td>
<td>Virginia Tech Transportation Institute (VTTI), USA</td>
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<tr>
<td>Julie Kang</td>
<td>Research Psychologist</td>
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Steven Feit, Manager / Chief Engineer,

• Need to produce systems that are flexible and can keep up with the pace of technology better.
• A center-based design approach.

Methods for HMI design, such as creating a master HMI specification and switching to a user-centered approach.

• What do we do? New approaches are needed in this new environment.
Need to consider new approaches.

• If you do it WRONG, the consequences are severe!

HMI systems in vehicles are no longer separated, discrete systems and the design needs to be reconsidered.

Feature content continues to increase, making the design challenges for the HMI more difficult.

This is creating a much higher expectation for the vehicle HMI.

Customer expectations are continuing to increase due to the consumer electronic market.

12:10 Customer expectations and the impact to HMI

• Customer expectations are increasing because of the consumer electronic market. This is creating a much higher expectation for the vehicle HMI.

• Feature content continues to increase, making the design challenges for the HMI more difficult. HMI systems in vehicles are no longer separated, discrete systems and the design needs to be reconsidered.

• If you do it WRONG, the consequences are severe!

• What do we do? New approaches are needed in this new environment. Need to consider new methods for HMI design, such as creating a master HMI specification and switching to a user-centered design approach.

• Need to produce systems that are flexible and can keep up with the pace of technology better.

Steve Feit, Manager / Chief Engineer,
Honda R&D Americas, Inc., USA
09:10 Persona Research and the Vehicle Experience
- How Persona Development is changing
- New Personas that address the future of the in-vehicle experience
- How Continental is developing new use cases/driver modeling
- What we may see in future vehicles (concepts)

Susan Drescher, Product Management, HMI Expert, Continental Automotive Systems, USA

09:50 Autonomous drive and driver – passenger - flexibility
- Interaction design of automotive interior
- Personalization and personal devices
- Cognitive and social needs
- Dr. Paul Pangaro - Associate Professor, Chair of the MFA Program in Interaction Design, College of Creative Studies, USA

10:30 Refreshment break & networking

11:00 Semi-autonomous systems: A review of current HMI
- Traffic jam assist and high-speed adaptive cruise control are now available to market.
- Current offerings will be reviewed and compared.
- Which implementations are “winning” in this space, and what do they have in common?

Derek Viti, Senior Analyst, Strategy Analytics, USA

11:40 Cockpit user experience and HMI for automated and autonomous eco-system
- Mobility cockpit user experience evolution roadmap
- Autonomous research and smart eco-systems
- Balancing safety & consumer wants
- Trends for HAD and autonomous mobility

Christopher Andrews, Leader of Emerging Technologies, Visteon Corporation, USA

12:20 Human Factors in Traffic – From Assisted to Automated Driving
- Results from public funded project UR:BAN MV
- HMI challenges when advancing from assisted to automated driving
- From distraction to situational awareness – the role of driver monitoring
- Interaction concepts for highly automated driving

Dietrich Manstetten, Chief Expert Human-Machine Interaction, Robert Bosch GmbH, Germany

01:00 Networking luncheon

02:30 Relationship between driver eyes-off-road interval and hazard detection performance under automated driving
- Automation promotes extended eyes-off-road (EOR) behavior, a loss of situational awareness (SA), degrading a driver’s ability to detect hazards and make necessary overrides
- Countermeasure could be orientation of driver’s glances towards potential hazards via cuing
- Simulated automated driving context: Participants engaged in visual-based secondary tasks of various lengths before being exposed to either a hazardous or non-hazardous road scene
- Results: EOR duration did not influence detection rates or detection time to imminent hazards

Yi Glaser, HMI/Human Factors Researcher, General Motors, USA

03:10 Distraction in relation to supervised and unsupervised automation
- Recent research on the dangers of driver distraction and inattention in the context of the increasingly capable car with collision avoidance and automation
- Countermeasures for distraction and inattention
- User experience and warning strategies for collision avoidance
- Polarization of the difference between supervised and unsupervised automation

Adj Prof, PhD Trent Victor, Senior Technical Leader Crash Avoidance, Volvo Car Corporation, Sweden

03:50 Refreshment break & networking

04:20 Advanced driver assistance systems with robust, user-aware, machine vision interfaces and high-efficiency, dynamic in-cabin scanning illumination technology
- TriLumina’s solid-state scanning laser system isolates the driver’s face, dynamically illuminating only the area of interest without the inefficiency, heat and red glow of LEDs
- eyeSight’s touch-free interface and in-car sensing solution provides safer driving experiences when interacting with automotive systems
- eyeSight’s gesture and head detection solutions direct the TriLumina Smart Illuminator to dynamically illuminate only specific areas in the field of view, minimizing power consumption, reducing noise and providing the most robust DMS solution on the market

David Abell, Chief Strategy Officer and Co-Founder, triLumina Corp., USA
eyeSight Technologies Ltd.

05:00 Spacing, Spotlights, and Spurs: Recent research on digital typography and related design factors
- The MIT AgeLab and Monotype have been studying a variety of issues relevant to text legibility on modern, digital screens in several languages
- Methods for accommodating large scale exposure to advanced features
- As more people develop degraded vision, it will be important to understand how different typographic factors affect legibility across years and ability ranges
- Design may not be a science, but nor is it completely subjective, and the methods we are developing may aide designers in making design choices

Jonathan Dobres, PhD, Research Scientist, MIT AgeLab, USA

05:40 Selecting the Right Environment when Evaluating HMIs: A Discussion of Methods and Proven Tactics
- Choosing between simulator, test track, and public road environments based on HMI context and research questions of interest
- Assessing challenges/benefits of controlled versus naturalistic data collection methods
- Appreciating the value of a well-designed unexpected event
- Methods for accommodating large scale exposure to advanced features
- Recognizing potential limitations across driver demographics, with emphasis on advantages/disadvantages across available environments

Luke Neurauter, Group Leader, Connected and Advanced Vehicle Systems, Virginia Tech Transportation Institute (VTTI), USA

06:20 Closing remarks of the chairman and end of conference day two
Workshop A: 09:00 – 12:00

One Interface for All: HMI and the multi-modal commuter

UX and UI designers in a variety of spaces are attempting to perfect the home-mobile-automotive experience. Obstacles include ease of use, brand awareness, and (in the case of the non-autonomous automobile) safety. The risk is that crafting a well-thought-out experience that solves one of those obstacles could sacrifice the experience in others. However, in a world where consumers have increased expectations about cross-modal experiences, this is a problem worth exploring in greater detail.

One clear use case for the home-mobile-automotive experience is the commuter who utilizes more than one mode of transport each day. In this workshop, we will discuss the unique challenges of designing for this scenario.

Topics include:
- The user’s expectations for home, mobile, and in-car HMI
- Affording for customization
- How these experiences might differ in a fully-autonomous world

We will also undertake a design exercise in which participants will explore this scenario in greater detail. After the participatory design session, the workshop will present and discuss their drafted wireframes for each step of the user’s journey.

Derek Viita, Senior Analyst, Strategy Analytics, USA

Workshop B: 09:00 – 12:00

Estimating compliance with the NHTSA visual-manual distraction guidelines

The goal of this workshop is to practice in using the calculation methods described in the presentation, specifically to determine if a visual-manual interface complies with the NHTSA guidelines.

For that purpose, one or more example interfaces will be selected (e.g., a Garmin navigation system). Task completion times for several tasks will be determined by small groups in the class (3 preferred) working together using data from SAE J2365 and other newer sources. Likely tasks to be explored include a settings change, POI, and street address entry. The advantage of these estimation methods is that they take a fraction of the time of the experimental methods (e.g., visual occlusion) specified by NHTSA, but they can be just as accurate.

For this workshop, participants will find having a laptop computer with Excel to be helpful and we will need to able to transfer data (Excel macros, VB interface simulation) to each computer to use in the workshop.

Paul Green, Research Professor and Leader Driver Interface Group, University of Michigan Transportation Research Institute, USA

Workshop C: 01:30 – 04:00

Smart HMI for autonomous cars

After a short warm-up on automated driving State of the Art HMI and the need and challenges for special HMI solutions we will directly tackle the key questions:

1. How do we have to design transition from and into automated driving?
2. How are driver states and traits adaptive to this transition be?
3. Which are the requirements for HMI to provide a good system awareness during automated driving?
4. How can we keep the driver in the loop and offer at the same time a benefit of automation?

Participants will work together on those questions guided by exemplary use cases from soon to come automated driving maneuvers. Last but not least we will discuss the advantages of different evaluation tools for automated HMI:

- Driving Simulators, Co-piloted vehicles, Test Tracks, Field Tests.

Bobbie D. Seppelt, M.S., Ph.D., Research Scientist, Touchstone Evaluations Inc., USA

Workshop D: 01:30 – 04:00

HMI challenges for the connected vehicle

With more connected features and services available to consumers in the car, the user experience is a key differentiator. The ease with which drivers will interact with the cloud in the car will determine how quickly these services will be adopted and will enhance customer satisfaction and retention. Many current connected infotainment offerings fall short in specific areas of the user experience, including issues with discoverability, poor HMI, and services not optimized for a driver’s needs. There is room for improvement and differentiation.

This interactive workshop will discuss how to optimize the user experience by designing compelling connected solutions, including:

- Best practices for enhancing the user experience
- Future HMI advances and their impact
- Driver distraction considerations
- Impact of autonomous vehicles on HMI

Luke Neurauter, Group Leader, Connected and Advanced Vehicle Systems, Virginia Tech Transportation Institute (VTTI), USA

Workshop Day I Thursday, 21 April 2016

08:30 Registration

12:30 Networking luncheon

04:00 End of workshop day
Established in 1913 and formerly known as Wireless World-Electronics World is a monthly technical electronic engineering magazine aimed at professional design engineers. The editorial of Electronics World covers the full range of electronic industry activities including technology, systems components, development tools, test, software and instrumentation. Electronics World informs, educates and advises by supplying readers with sufficient engineering detail to enable them to understand developments in the electronics industry as a route to their design problem solutions.

Visit the website at: www.electronicsworld.co.uk

The Connected Vehicle Trade Association (CVTA) is a non-profit business league established to facilitate the interaction, and advance the interests, of the entities involved in the vehicle communication environment. The Connected Vehicle Trade Association enables the collaboration of companies, organizations, and governmental bodies engaged in developing bidirectional vehicle communications. Membership is open to any corporation, public entities, standards and specification organizations, educational institutions and qualified individuals.

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Connected Car Tech is a thriving community of professionals interested in connected car strategy and technology. We take the best industry research and put our own spin on it, report from the frontline of connected car news, as well as feature contributions from companies at the heart of this revolution.

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Every registration includes a complementary membership to Automotive IQ

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**Conference Packages**

Please indicate your choice of workshop on **Thursday, 21 April 2016**

- Workshop A: One interface for all: HMI and the multi-modal commuter
- Workshop B: Estimating compliance with the NHTSA visual-manual distraction guidelines
- Workshop C: Smart HMI for autonomous cars
- Workshop D: HMI challenges for the connected vehicle

Please note: Workshop A and B as well as Workshop C and D are running parallel. Please make your choice.

**4 Ways to Register**

Fax: +49 (0)30 20 91 32 10  
Post: IQPC Gesellschaft für Management Konferenzen mbH  
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10117 Berlin, Germany  
Email: eq@iqpc.de

**Venue and Accommodation**

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3200 Boardwalk Street,  
Ann Arbor, Michigan 48108-1774, United States  
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