DVN-I
Automotive Interior

Thu, 24 February 2022 Weekly Newsletter NEWSLETTER #100

Editorial

100th Newsletter: Three Years Of Car Interior Innovation

LUCID AIR (LUCID IMAGE)

DVN Interior is almost three years old, and today we celebrate our 100th newsletter. What does it represent? It means more than one thousand innovations introduced to the DVN Interior community. So many things are happening in vehicles becoming ever more automated, more connected, more electrified, and the interior experience is fast becoming the main focal and unique selling point.

Six interior experts watchfully participating in webinars and visiting motor shows; visiting dealers and automakers and suppliers; combing mountains of media to find relevant news—this is your DVN-Interior team, supported by the larger DVN consortium of experts applying their broad, deep experience.

The idea of the now is car interior as a third living space, where experience is the signature, where you're able to have multiple activities, beyond driving. A place where emotions play a huge part in how we experience car interiors. With digital, software, and sensing technology, millions of new ideas are made possible to enhance occupant experience through what they see, feel (including feeling safe), touch, hear, and elsewise perceive.

The upcoming DVN Interior Workshop (Köln, 25-26 April) is in final preparation, and it will reflect all these interior dimensions. It will include an award ceremony, including a Best Innovation award adjudged by the DVN expert jury. We'll also reward the best lecture and the best exhibition booth of the Workshop—yet more reasons for you to exhibit, speak, or just to attend! Find more information in this edition In-Depth, and **here**. As for us, we're all looking forward to meeting you there.

We're ever so glad you're with us!

Philippe Aumont
General Editor, DVN-Interior

In Depth Interior Technology

DVN Interior Köln Workshop: Building Up to the Best

The upcoming DVN Interior Workshop (Köln, 25-26 April) is in final preparation, and it will reflect major car interior trends.

The overall theme is **“Experience Interior · Technology for Safety, Comfort, & Fun”**

The workshop is structured around 6 sessions, as follows:

- HMI: Human Machine Interaction,
- Driver Monitoring Systems,
- Interior Lighting,
- Functional Surfaces,
- Interior Air Quality,
- Materials/Sustainability.

We expect attendance of 150 persons on-site, plus a 100 on-line, representing OEMs, Tier #1, and Technology Suppliers.

We’ll have Product Exhibition Booths, an excellent opportunity to introduce your product to industry leaders. Any exhibitor has a pre-booked lecture slot in the agenda.

DVN Interior Member Verbatim

Faurecia: Andreas Wlasak, VP Design

“Seeing people from various backgrounds in real and exchanging with them about what drives us – the future of mobility – is a key reason to join this DVN Interior Event. A selection of industry peers that I would normally not interact with, is a great sounding board to challenge my personal convictions, our collective thoughts and concepts and our company’s roadmap to the future.3

“In the ever-changing automotive world of today, and in my case also the changing corporate context of Forvia, where many certainties are questioned, it is vital to look into the future together within an eco-system, to co-develop the solutions for tomorrow and to stimulate each other with shared insight and experiences.”

Novem: Dominik Heilborn, Director Light & Function

“Because the who is who of the automotive interior is gathering and it is a great stage to show Novem understanding of current and future interiors and to show Novem capabilities”

“I believe that the automotive interior is changing a lot and personally believe that especially socializing in interiors is way underrepresented in the current concepts and this is the perfect place to discuss future concepts with people, that are in apposition to drive decisions within OEMs and Tiers. At the end of day, it is a chance, to drive the business community I a direction of meaningful decisions. It is about changing the world.”

Hella: Dr. Herbert Wambsganß, Head of Development Interior Lighting

“Such an industry meeting is important to exchange B2B about technological solutions. New technologies have a greater chance of being implemented if they are pursued by several players.”

“Within the framework of our merger with Faurecia as FORVIA, new approaches to the lighting design of interior systems will be developed and ideas and solutions will be presented”

Covestro: Ciro Piermatteo, Global Marketing Manager Automotive Interior

“The DVN workshop is a top format to discuss the future of mobility with the top experts in automotive interior concepts and to understand the materials as enablers.”

“It is important for us to hear from top decision-makers: What is the future trend? Covestro has the polycarbonates for exactly this design, especially because we already play an important role in the automotive supply chain.”

Elmos: Jatin Thaker, Senior Director, Product Segment Lighting

“The DVN workshop is a top format to discuss the future of mobility with the top experts in automotive interior concepts and to understand the materials as enablers.”

“Meeting car interior leaders during this event would hopefully result into engaged, thought provoking exchanges at system level requirements and understanding their challenges first hand allowing us to eventually deliver ultimate value for our end customers.

The Workshop Context

The industry, when targeting Automotive Interior Future, Cabin of the Future, Cockpit of the Future, the Third Living Space, it always means that there’s tremendous paradigm shift for the Interior of the vehicle, because of more Connected, Automated, Shared and Electrified (CASE) vehicles.

FAURECIA – COCKPIT OF THE FUTURE – IMAGE: FAURECIA

Whatever the name, what OEMS and Tiers are doing is to focus on User Experience, key criteria nowadays to sell a vehicle! User experience has to create fun, that's the reason of the Workshop title. This User Experience comes from our perception through our five basic senses: touch, sight, hearing, smell and taste. The sensing organs associated with each sense send information to the brain to help us understand and perceive the environment around us.

Hereafter we list only lectures which have been confirmed as of February 18, 2022. The whole host of lectures will be published mid-March.

Each day will be introduced with a keynote speech to set the scene of the future of automotive interior.

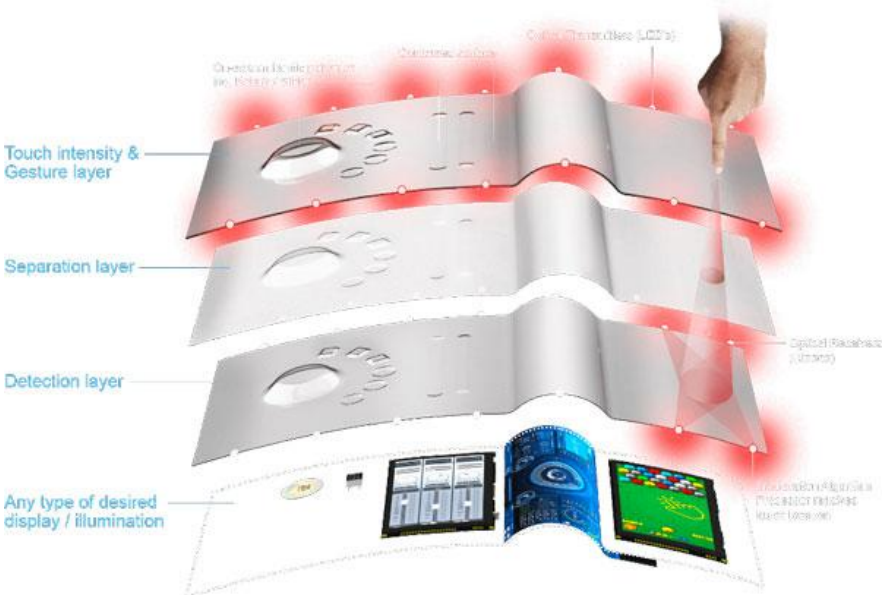
On day #1, April 25, 2022, Andreas Wlasak, VP Design at Faurecia, will make a keynote speech with the title: Human Centered Solutions to Future Mobility – safe, sustainable, customized, advanced mobility

HMI: Human Machine Interaction

HMI is much more than screen readability. There're many ways to interact with the vehicle (buttons, switch, touch screen, voice, gesture), and there's many ways for the vehicle to interact with the driver (screen message, HUD, sound, light, vibration).

In the different lectures we'll address:

"Augmented Reality: HUD vs. Display" by Prof. Blankenbach, from the University of Pforzheim



INTERIOR SURFACE LAYER STACK-UP – IMAGE: UNIPHY

Can automotive HMI be Safe as well as Beautiful, Intuitive, Robust and Economic? by Jim Nicholas, CEO of Uniphy, an expert company in HMI surfaces.

Elimination of physical buttons in cockpits; by Gerald Morrison, CTO, Sigmasense, a leader in touch sensing performance,

And Movable Knobs and Future, by Sven Ress, Marketing, Preh Group, a leader in smarter solutions for HMI.

Driver Monitoring Systems

DMS started out as a safety feature to reduce accidents related to driver drowsiness and inattention. It is becoming even more important as regulation is making it mandatory into new vehicles.

As they evolve to become more advanced, the industry will leverage this detection technology to improve more aspects of all vehicle occupants' health and comfort. Aside from detection of mission-critical criteria, similar technology could detect mood-related criteria to improve the whole occupant experience during the trip.

In the different lectures we'll address:

DMS market and perspective, by Yole Development

IMAGE: ANSYS

"Increasing comfort and safety of autonomous vehicles by integrating sensors into the interior design", by Günther Hasna from Ansys.

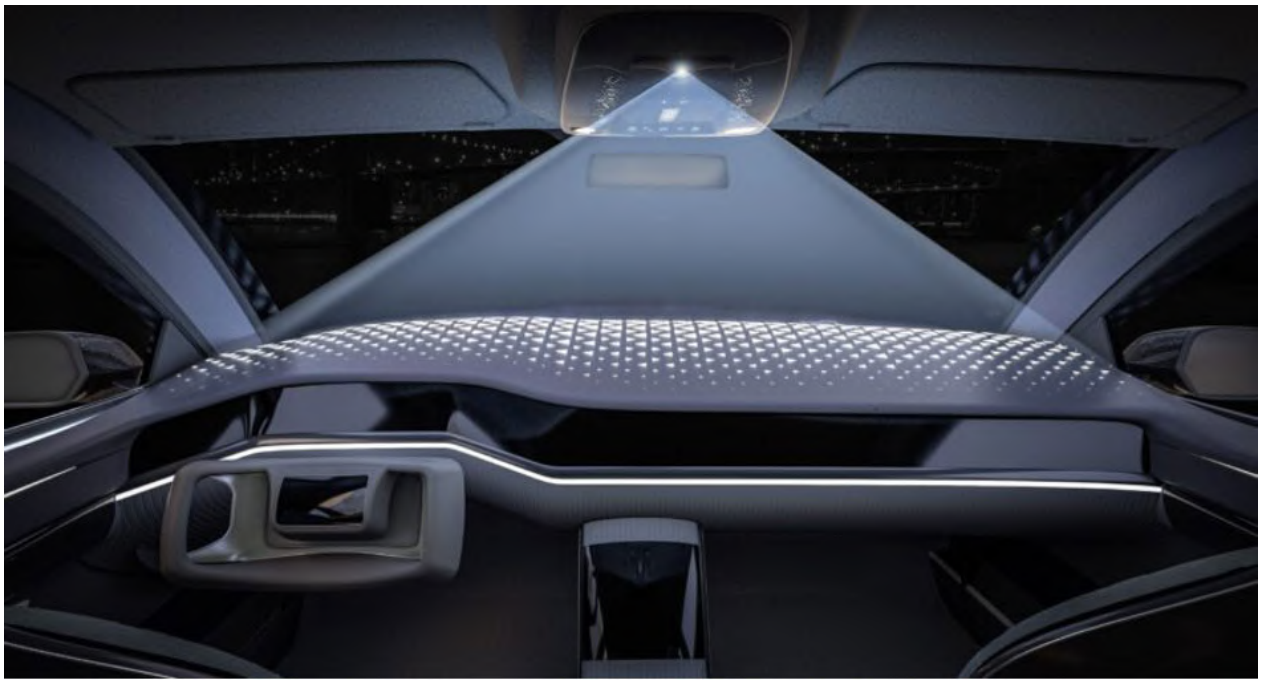
And three other technology presentation among: Mercedes, Smart Eye, Seeing Machine, 3D Emotion, Lumentum, etc.

Interior Lighting

Interior lighting, which—likewise—is not just what one sees when sitting in the vehicle. Interior lighting enhances the travel experience; facilitates finding and operating vehicle controls; supports infotainment, and visually improves surfaces and materials. In this context, intelligence means adapting to context; to mood. Lighting is increasingly a pillar of interaction between the vehicle and the driver, an integral part of the vehicle's safety system.

In the different lectures we'll address:

Future shapes of interior lighting applications, by Dr. A.Bizal, Interior Lighting Innovation at Hella.



OVERHEAD CONSOLE LIGHTING – IMAGE: AMS OSRAM

Overhead Light Console for high-quality and individual interior lighting, by Tobias Huber, Head of Advanced Development, at ams Osram.

ILaS Network – the new lighting architecture, by Stefan Hoffmann – Application Engineer at Inova Semiconductors GmbH, a fabless semiconductor manufacturer.

Ambient Lighting goes functional, by Michael Bender from Melexis, which designs, develops and delivers innovative micro-electronic solutions.

We're expecting BMW to confirm.

Functional Surfaces

Car interior surfaces are located all around driver and occupant. Overall developed surfaces represent dozens od square meters!
These surfaces were signing the interior styling, now they play a much bigger role as they becoming functional, either through sensing and haptic features, but also through projection.
Functional surface talks about integration, the most important challenge of any automotive project.

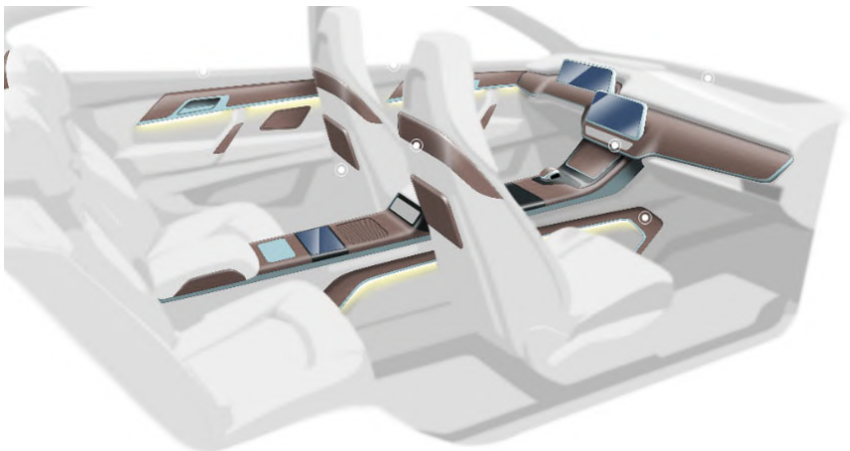


IMAGE: NOVEM

In that respect, Dominik Heilborn, Director Light & Function at Novem, leader in high-quality trim elements and decorative function elements in car interiors, will talk about Integrated interiors - a new seamless design layer. Dr. Wolfgang Clemens from PolyIC, the specialist for

interior smart and flexible sensing solutions, will address Decorative HMI surfaces with embedded functions.

The other lectures will include Renault, DesignLED, now part of Faurecia.

Interior Air Quality

IMAGE: SXDRV

IAQ (interior air quality), which is growing in importance as more driving is done in dense urban traffic and people are increasingly aware—and concerned—about it. IAQ is quantified as the concentration of pollutants like CO_2, NO_x and VOCs. Now it's moving beyond ust measuring negatives and adding a positive evaluation through fragrance, which is becoming a major criterion of occupant perceived quality and a design element reflecting the signature of the brand.

In this session, Diego Val Andrés, New Tech Programs at Grupo Antolin will make a lecture with the title The challenge of passenger compartment sanitization.

Three other lectures are in preparation.

Materials/Sustainability

Car interiors represent a major challenge in terms of sustainability, and future carbon neutrality. Interiors also play a major role in consumer perception of sustainability through how materials and surfaces look and feel.

What is true for the whole car is even more true for interior, as plastic is the predominant material in car interiors. Plastics represent about 12 to 15 per cent of the weight of today's vehicle, which translates to 150-200 kg of plastic per vehicle, with a big chunk of it in the cabin.

IMAGE: COVESTRO

Ciro Piermatteo, Global Marketing Manager Automotive Interior at Covestro, a major player in the polymer materials field, will make a lecture title "Challenging the status quo, high tech material for future auto interior"

Three other lectures are in preparation.

Innovation award

Three awards will be distributed, during Dinner on April 25th, including a special 100th Newsletter Best Interior Innovation!

DVN Interior - Köln Best lecture
DVN Interior - Köln Best exhibition booth
100th Newsletter - Best Innovation

Another good reason to make a lecture and to exhibit, even if the Köln DVN Interior workshop allows your company to network with European, North American and Asian players and promote your interior products or service offer.

General

Registered attendees who will not be able to travel to Köln will benefit from an online replay of the complete event.

Discussion panels and exhibition booths will host fruitful exchanges between participants.

Get set to exhibit, to speak, or just to attend! Find more information here.

Interior News

Porsche Taycan's Panorama Roof Has "Sunshine Control”

INTERIOR NEWS

PORSCHE IMAGE

The Sport Turismo is Porsche's latest Taycan variant, and it has a new glass roof which can be darkened at the touch of a button—without blinds—for a new user experience.

It's an electrochromic setup called "Sunshine Control": liquid crystals are contained in a film using PDLC (polymer-dispersed liquid crystal) technology. When current flows through them, they align such that the film, and therefore the roof, becomes transparent. When the current is switched off, the liquid crystals change to a disordered state and the glass becomes translucent and more or less opaque.

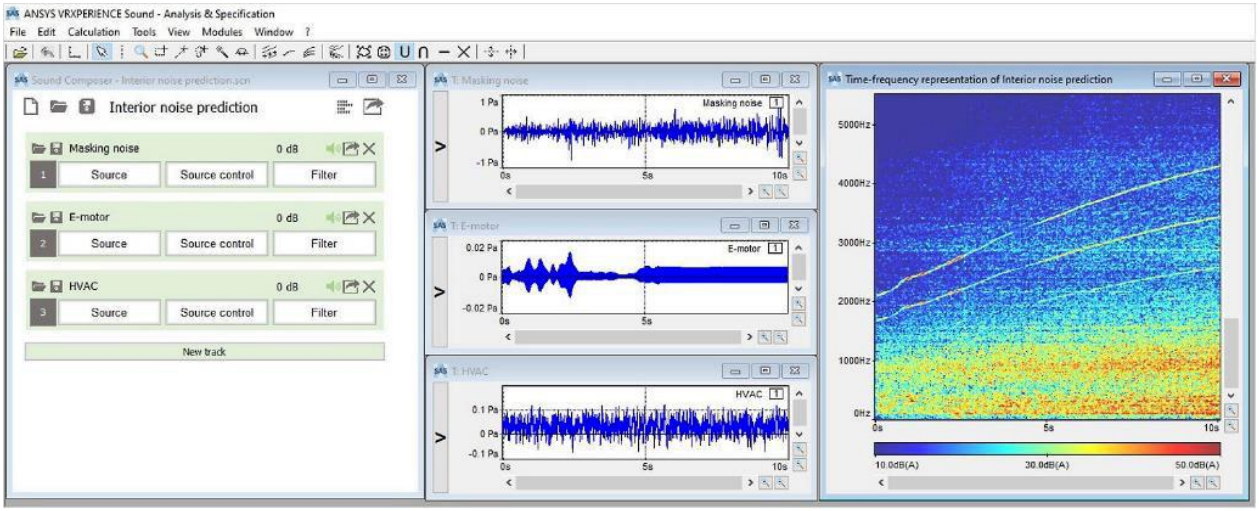
Porsche has divided the film into nine areas so users can choose to darken specific areas or the entire roof. Even when the film is switched "off", light continues to enter the interior. Thanks to the multi-layered structure of the window, however, this is not associated with strong heating; only 15 per cent of the heat enters the interior of the car—compared to more than 30 per cent with conventional roofs.

It even has a dynamic Roller Blind setting, which activates a switching sequence in the individual segments when the Taycan driver slides their finger over a representation of the roof in the display. When the vehicle is switched off, the glass automatically changes to its opaque state. The previously used roof setting is saved for the next time the car starts up.

What's next? Well, if we had a vote, it would be to extend the electrochromic film to the upper area of the windshield to protect the driver from glare. For now, the driver of the new Taycan has to do like every other driver for the last century: flip down a board-type sunvisor.

Ansys Tools for Aeroacoustics Simulation

INTERIOR NEWS



ANSYS IMAGE

Aeroacoustics is the study of noise generated by turbulent fluid motion, including aerodynamic forces interacting with surfaces. This is how engineers and designers identify the origin of a noise, understand its effects, and model solutions to attenuate or eliminate the noise—or at least tune it so it's more pleasant. These techniques can be applied to meet noise regulations and to customize and improve user experience.

In a car, there are many parts which are being constantly impacted by flowing air. Here, aeroacoustics simulations can quickly identify the source of a sound and explore ways to silence it. As a passenger rides in a car, they can perceive a variety of sounds that contribute to overall noise. Some examples:

• **HVAC system noise:** The noise from a car's heating, ventilation, and air conditioning system contributes to overall perceived noise levels.

• **Door gap noise:** The flow-induced pressure fluctuations in a door gap cavity generates cavity noise.

• **Side mirror and window noise:** Noise is generated from turbulent flow impinging on the window glass generated by the car's surfaces and side mirror design.

• **Tire noise**: Noise from the rotation of the tires contributes to external flow aerodynamic noise.

• **Wiper noise**: The noise from wiper movement contributes to external flow aerodynamic noise.

• **Sunroof noise**: A sunroof or side window open can generate a resonance between the cabin acoustics and pulsating vortices crossing the opening, a "buffeting" noise.

How can Simulation Reduce Automotive Noise?

Aeroacoustics simulation helps predict the combined impact of these different noise sources on the overall sound level in specified locations — for instance, the driver's seat. Being able to predict noise enables designers to make modifications on car definition and materials to comply with regulations and improve the comfort of the passengers.

Ansys Fluent can solve complex aeroacoustics problems and provide an extensive set of modeling options and post-processing capabilities to improve acoustic design using a variety of methods:

• **Broadband noise methods**, where the steady solution is used as basis for noise source estimation.

• **Acoustic analogy methods**, where the computational fluid dynamics (CFD) solution is decoupled from the sound propagation via wave equation solutions.

• **Direct methods** (i.e., direct computational aeroacoustics), which fully couple the calculation of unsteady flow and acoustic fields.

Ansys has a new acoustics workflow that couples Ansys Fluent CFD simulations to Ansys Sound. This enables engineers to use advanced acoustics analysis techniques to analyze the acoustic pressure signals computed by CFD, including:

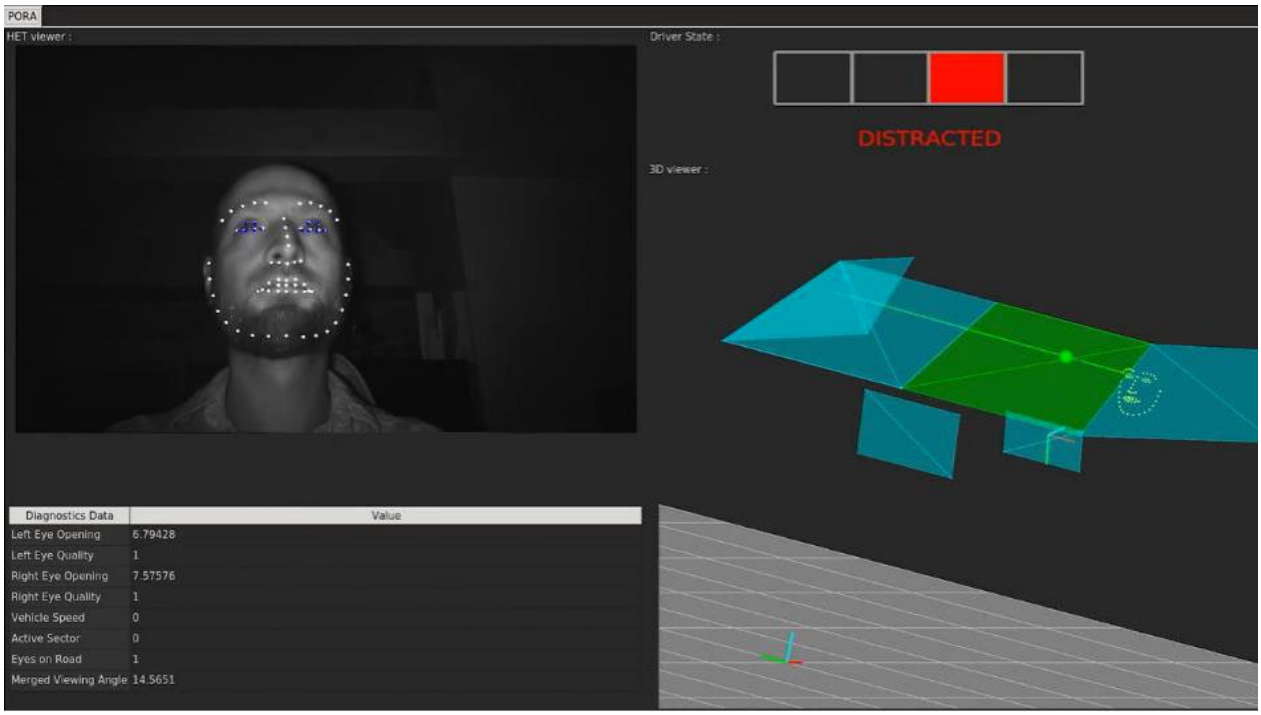
• Sound files that let you listen to simulated sounds.
• Reports on volume, tonality, sharpness, and articulation.
• Translation of pressure signals to see acoustic indicators by location.
• Multiple frequency functions for sound composition.

During the solution setup in Ansys Fluent, it's possible to define an array of receivers and propagate the noise sources to them. The new Sound Analysis module extends Ansys Fluent acoustics capabilities, enabling engineers to hear what is computed in the CFD simulation.

Even short acoustics signatures generated at receiver locations during CFD simulations can be turned into high-quality audible long files. In addition, psychoacoustic analysis tools can provide insight into the impact of predicted sounds on human ear perception. The acoustics analysis in Ansys Fluent also support Frequency Response Function, which allows users to switch from the computed isolated component noise to the prediction of that noise in the cabin *without* having to simulate the cabin itself once the time-frequency representation (TFR) has been given/evaluated, and compose the total sound from different sources With a single click, it's possible to transfer the acoustic signals and launch more sophisticated acoustics analyses in Ansys Sound.

AI for Better Occupant Monitoring

INTERIOR NEWS



CONTINENTAL IMAGE

At last week's CAR HMI Europe online conference, Fraunhofer IOSB (Institute of Optronics, System Technologies and Image Exploitation) automotive human factors expert Fredericks Diederichs gave a presentation about advanced occupant monitoring, including the KARLI project.

The goal of the KARLI project is to develop an adaptive, responsive and level-appropriate interaction between humans and vehicles of the future and to use AI methods to develop new safety-relevant assistance systems. To this end, customer-relevant AI functions are being developed in KARLI that detect driver states and design interactions for different automation levels.

These AI functions are developed in KARLI from empirical and synthetically generated data. The data will be collected and used in KARLI in such a way that the project results are scalable to Big Data from production vehicles available in the future.

KARLI's target applications are aligned with the overall goal of "level-compliant driver behavior."

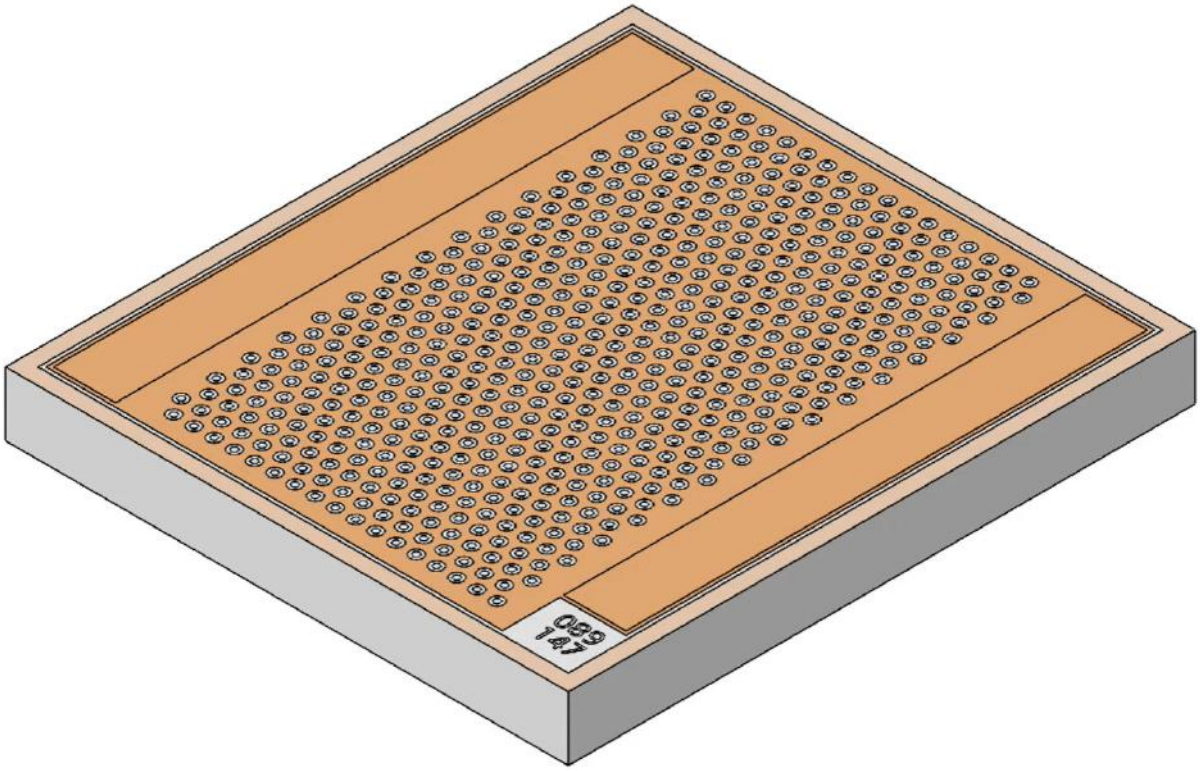
The drivers state, his behavior and his probable ability to act are derived from the current driving situation, including the level of automation.

The recording of the driving situation and the driver's condition thus allows an actual-target comparison and a targeted approach in the dialog between human and machine: detection of the driver condition and driving situation, and adapting the human-machine interface appropriately.

The KARLI approach investigates how AI methods can be better trained for real-world applications using less structured, but large and multisensory data sets, including contextual data. The project sponsor is TÜV Rheinland, the consortium has 12 partners from research, industry & technology consulting, including Continental, Ford Werke, Audi. The project will run through June 2024.

Lumentum's VCSELs For In-Cabin Sensing

INTERIOR NEWS



AUTOMOTIVE-GRADE HIGH-POWER 940-NM VCSEL ARRAY (LUMENTUM IMAGE)

Lumentum has presented the application of their VCSEL technology into DMS. The company already presented their technology in the context of Lidar, in the last DVN Lidar conference, back in November 2021.

Moderate levels of autonomous driving require that the driver be fully engaged when the vehicle is in motion. By collecting driver and occupant data, in-cabin sensing enables monitoring of the state of the driver; i.e., whether the driver is actively paying attention to the road or is distracted or drowsy. In-cabin sensing also makes it possible to support gesture recognition for in-car navigation, communications, and infotainment systems. In-cabin sensing uses image processing to confirm that the driver is not falling sleep, checking email, or staring out the side window. The challenge in implementing in-cabin sensing with the use of traditional image sensors has been the difficulty of capturing driver data under diverse lighting conditions. In-cabin sensing needs to provide crisp images in full daylight, at night, and for all lighting conditions between.

To achieve this, the system needs to consistently illuminate the driver in a reliable manner without adversely impacting his or her ability to drive (i.e., an LED that blinds or distracts the driver).

VCSELs (Vertical-Cavity Surface-Emitting Laser), are able to safely illuminate the driver by operating in a part of the spectrum that the driver cannot see. Additionally, because VCSELs use a specific wavelength, it is possible to combine them with bandpass filters to capture light only in the spectrum of interest. This effectively illuminates the driver while filtering out environmental light such as oncoming headlights or bright sunlight. The end result is clear and consistent images for the processing subsystem to work with. High-reliability 940 nm VCSEL arrays are ideal for DMS and gesture control for in-cabin applications.

An alternative to VCSELs for in-cabin 3D sensing is IR LEDs. However, the efficiency of IR LEDs (25-30%) is lower than VCSELs (35-40%). The bandwidth of an IR LED is also wider (30-40 nm) compared to a VCSEL.

Qt Company Makes Stellantis HMI Development, Upgrades

INTERIOR NEWS

QT IMAGE

Finnish software developer The Qt Company working on the development of Stellantis' current in-vehicle HMI systems across their European car brands. Qt is used by more than 1.5 million developers in companies across the world including LG Electronics, Bosch and Rockwell Automation. The company's net sales in 2020 totalled €79.5m, and it employs some 450 people.

The project, which began in 2018, will see the Qt technology used for the development of HMI enhancements for 6,000,000 cars per year, with deliveries having started at the end of 2021. Enhancements include technical and stylistic upgrades to the HMI across all screens within the car, including cluster, head-up display and infotainment.

Qt's EVP of sales Juhapekka Niemi says his company is "thrilled to be part of the Stellantis digital cockpit breakthrough. The role of software within the automotive industry is only growing, and it’s vital that manufacturers leverage the latest tools at their disposal to keep up with industry trends. With our cross-platform capabilities, we hope to extend and deepen our partnership as technological requirements evolve over the coming years".

Qt says their software provides the ability to implement sophisticated technological improvements, including real-time 3D effects, into HMI to meet the ever-evolving demands of the automotive industry and brand differentiation. Qt was also leveraged across entire design workflow to close the gap between developers and designers, allowing for faster and easier development lifecycles.

Stellantis senior UX expert Laurent Nicolas says "The design department works with Qt for the development of our in-vehicle HMI systems. Qt allows us to prototype, test, iterate and deliver our HMIs very quickly thanks to cross-platforms support and advanced user interface. Qt Design Studio and latest UI rendering solutions help designers, ergonomists and engineers create rich and tailored UI according to each brand-specific UX markers".

Audi A8L: Long, Luxurious Rear Experience

INTERIOR NEWS

AUDI IMAGE

Audi's A8 L is the extended-body version of the Audi A8 (5.32m), extended for a roomier rear compartment, allowing executives to work while being chauffeured. And even if there's still a chauffeur, this vehicle has been loaded with 40 driver assistance systems. The operating concept in the Audi A8 L relies on two displays (10.1" and 8.6") and natural voice control. The dialogue is started with the call "Hey Audi! The fully digital Audi virtual cockpit with the optionally available head-up display completes the dashboard.

The Bang & Olufsen Advanced Sound System brings 3D sound with its treble information even to the rear seats. An amplifier drives 23 speakers with 1,920 watts of power, and the tweeter lenses extend electrically from the instrument panel. The Rear Seat Remote, now permanently mounted in the center armrest, allows many comfort and infotainment functions to be controlled from the rear. The control unit with its OLED touch display is about the size of a smartphone

AUDI IMAGE

The highlight in the rear is the reclining seat. It offers numerous adjustment options and a footrest, attached to the backrest of the front passenger seat. There, passengers can have the

soles of their feet warmed and massaged in several stages. The reclining seat package includes a back massage with 18 pneumatic cushions, electrically adjustable comfort headrests, a full-length center console - optionally with folding tables, 4-zone automatic comfort air conditioning and the new screens in the rear.

A cool box including bar compartment in the Audi exclusive range underlines the executive touch. Enjoy movies is possible, thanks to new screens, attached to the backrests of the front seats, with 10.1” displays with Full HD resolution. They play back content from the passengers' terminal devices, and can also receive numerous audio and video streams.

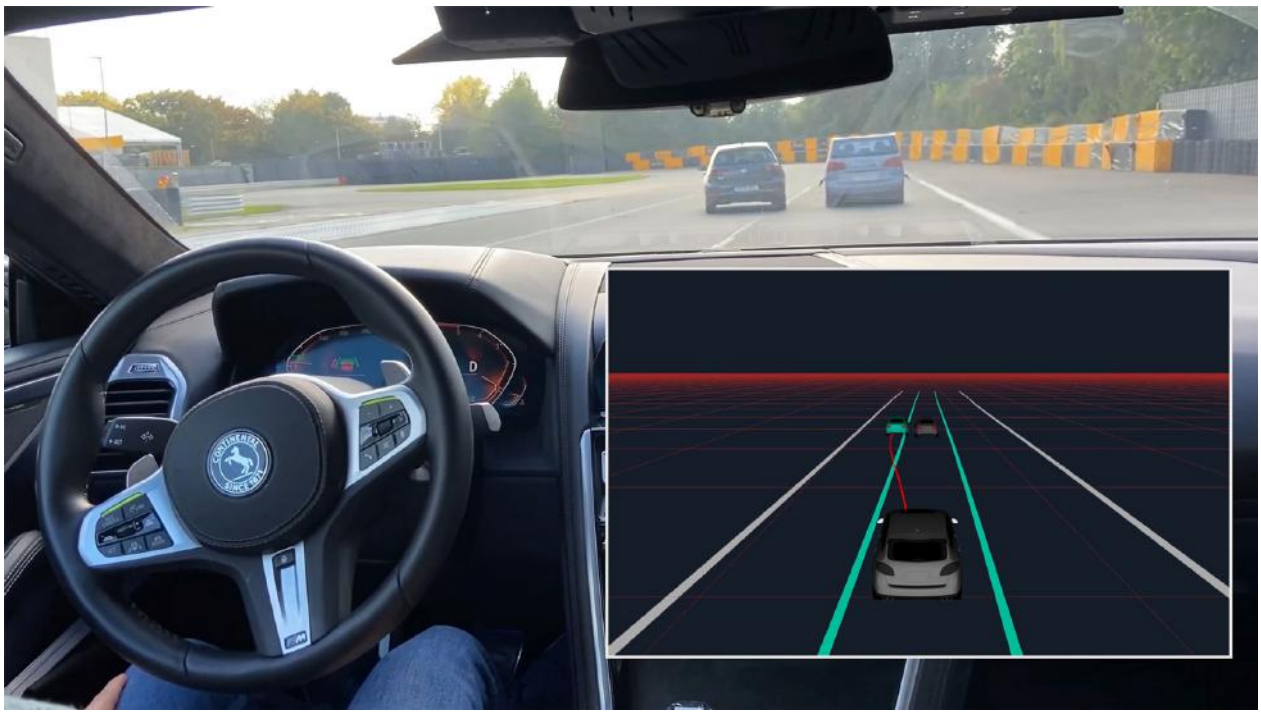
Audi promotes the anticipatory active suspension. It can load or unload each wheel individually with additional forces via an electric motor and thus actively regulate the position of the body in every driving situation. In comfort+ mode, the control system works together with the front camera, which enables it to detect unevenness within the system limits and regulate the actuators predictively. At the same time, the integrated curve tilting function reduces the lateral accelerations acting on the occupants. When driving straight ahead, the anticipatory active suspension compensates for pitching movements of the body.

For comfortable entry and exit, it raises the body by up to 5 centimeters!

News Mobility

Continental "Driving Planner" for Highly Automated Driving

NEWS MOBILITY



CONTINENTAL IMAGE

Continental has developed a new technology solution for highly automated driving: an intelligent software that enables complex driving maneuvers autonomously. What's special about the solution: It is already close to series production and can be used as early as 2024. Key software and hardware components were all developed by Continental.

This Next Generation Driving Planner is an innovative software solution that enables highly automated driving from L^3, so vehicles can master certain driving tasks independently and without driver intervention.

The Driving Planner calculates precise decision-making variants from a wide range of sensor data in order to automatically master complex driving maneuvers on the highway or expressway. To do this, the software can calculate traffic situations several seconds in advance and derive the optimum response from the vehicle. What is special about the new solution is that it calculates the combination of longitudinal and lateral movements. Individual systems available today - adaptive cruise control, lane change assistant - plan longitudinal and lateral movements independently of each other, for example, longitudinal movement with adaptive cruise control and lateral movement with lane change assistant. Continental's Driving Planner now calculates the longitudinal and lateral movement together over a time horizon of several seconds. This enables the technology to master complex maneuvers of highly automated driving.

A typical example where the new system will be able to relieve the driver in the future is when entering a highway via the acceleration lane. The Driving Planner calculates this complex maneuver from radar sensor and camera data and makes the optimal decision.The vehicle accelerates forward, merges into the ongoing traffic to the side and then picks up speed according to the traffic flow and other road users. Another example: The vehicle is traveling in the middle of a three-lane highway, there is a traffic jam on the right, and the speed is high on the left. Suddenly, a car swerves from the right into the middle lane. Within fractions of a second, the Driving Planner calculates the safest driving maneuver from various possible alternatives - braking in the lane, accelerating and merging to the left, braking and merging behind another vehicle in the left lane.

Benteler, Mobileye, Beep: Autonomous Shuttles For Real

NEWS MOBILITY

MOBILEYE IMAGE

Benteler EV Systems, Beep, and Mobileye are working together to develop an all-electric autonomous mover for the first and last mile. The start of production is planned for 2024.

Benteler EV specializes in total systems engineering for electric vehicles and is known for their scalable and modular platform for electric vehicles, the Enteler Electric Drive System. Mobileye is the market leader in autonomous driving solutions and has shipped more than 100 million of its leading computer vision solutions for the established driver assistance systems market. Beep has successfully tested autonomous electric shuttles in many public road projects for tens of thousands of riders over tens of thousands of road miles in 2021 alone.

This shuttle will be able to operate without a driver (L^4) and is based on Benteler's EV construction kit, including Benteler Rolling Chassis. The system for the automated driving functions comes from Mobileye. The vehicle will be complemented by the proven deployment and operating systems, hardware and services from Beep.

Benteler first presented a shuttle based on their e-car kit in mid-2021. For use in North America, the supplier wants to develop a new mover and integrate the subsystems into it. This also includes the industrialization and production of the mover, which is to take place in the USA. Later, the mover will be marketed globally.

Beep is testing autonomous electric shuttles in public road projects in the USA, working with NHTSA. The company says they are working on machine learning, contextual route intelligence and has a centralized command center platform.

Mobileye plans to launch a ride-hailing service with driverless Chinese Nio SUVs in Munich this year. In Paris, autonomous vehicles will in future take employees of the Galeries Lafayette department stores to work and drive them home again.

General News

Jaguar Land Rover, Nvidia in AD-AI Pact

GENERAL NEWS

Jaguar Land Rover and Nvidia have formed a multi-year strategic partnership to jointly develop and deliver next-generation automated driving systems and AI-enabled services and experiences. It is part of their product strategy, reimagining the future of modern luxury by design through its two distinct, British brands. JLR CEO Thierry Bolloré recently gave a **talk** on the subject.

Starting in 2025, all new Jaguar and Land Rover vehicles will be built on the Nvidia Drive software-defined platform—delivering a wide spectrum of active safety, automated driving and parking systems as well as driver assistance systems. In vehicle interior, the system will deliver AI features, including DMS/OMS and advanced visualization of the vehicle's environment.

This full-stack solution is based on Nvidia Drive Hyperion, which features Drive Orin centralized AV computers; Drive AV and Drive IX software; safety, security and networking systems; plus, surround sensors. Drive Orin is the AI brain of the car and runs the Jaguar Land Rover Operating System, while Drive Hyperion is the central nervous system.

Jaguar Land Rover will also leverage in-house developed data center solutions with Nvidia DGX for training AI models and Drive Sim software built on Nvidia Omniverse for real-time physically accurate simulation. Jaguar Land Rover's software-defined features and its end-to-end verification and validation architecture will enable the delivery of innovative assisted and automated driving services throughout the life of the vehicle via over-the-air software updates.

Current JLR model range embraces fully electric, plug-in hybrid and mild-hybrid vehicles, as well as the latest diesel and petrol engines. They sold, in fiscal 2020/21, 439,588 vehicles in 127 countries. Land Rover is a global leader of luxury SUVs through its three families of Range Rover, Discovery and Defender. Jaguar is the first ever brand to offer a premium all-electric performance SUV, the Jaguar I-Pace.