Thu, 19 October 2023
Weekly Newsletter

DVN-I
Automotive Interior

NEWSLETTER #183

Editorial

2024 Köln DVN Interior Workshop · Save The Date!

The 2024 DVN Interior Workshop will be on 23-24 April at the Pullman Hotel in downtown Köln, Germany. The rubric for the event is **Interior of the Future—New Features and Emerging Technologies**.

The program we're building will include sessions about HMI, seats, CMF, comfort and ccoustics, and materials and sustainability. Be sure and save the date! And watch your DVN Interior Newsletter for updates as we assemble a top-notch lineup of lectures and panel discussions.

This week's in-depth report looks at seat heating-cooling-ventilation. It's the latest in our ongoing series of overviews of interior technical content—joining those we've presented for interior lighting, HUDs, headrests, consoles, driver monitoring, IAQ, and others. These features enhance the user experience with new levels of safety and comfort. And seat-cooling also helps to reduce energy consumption, thanks to more local occupant thermal management; that's crucial for EV range.

As the Geneva Motorshow happened last week in Qatar, Coffee Corner is reminding us how important this event was in the past, when it was happening in Switzerland.

Enjoy the week!

Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

Seat Heating, Ventilation, Cooling

CADILLAC SRX DASHBOARD CONTROL PANEL (GM IMAGE)

Seat heating provides the driver and passengers with a warm and comfortable seat in cold weather. It is usually controlled by a switch or a dial or via a touch screen, so the user can adjust the temperature. Some cars also have seat ventilation or active cooling, which can remove moisture from the seat and cool the air flowing into the seat. These features can enhance comfort and wellbeing, especially on long journeys.

ANON IMAGE

Ventilation was introduced in 1997 by Saab and heating by Cadillac in 1966.

Seat heating works by using electric heating elements embedded in the seat cushion and backrest. These elements are connected to the car's battery and draw power when activated. The heat is then transferred to the seat surface and the occupant's body. Seat ventilation works by using fans in the seat, which draw air from the cabin or the outside and circulate it through perforations in the seat cover. This reduces uncomfortable perspiration and dries the moisture between the occupant and the seat.

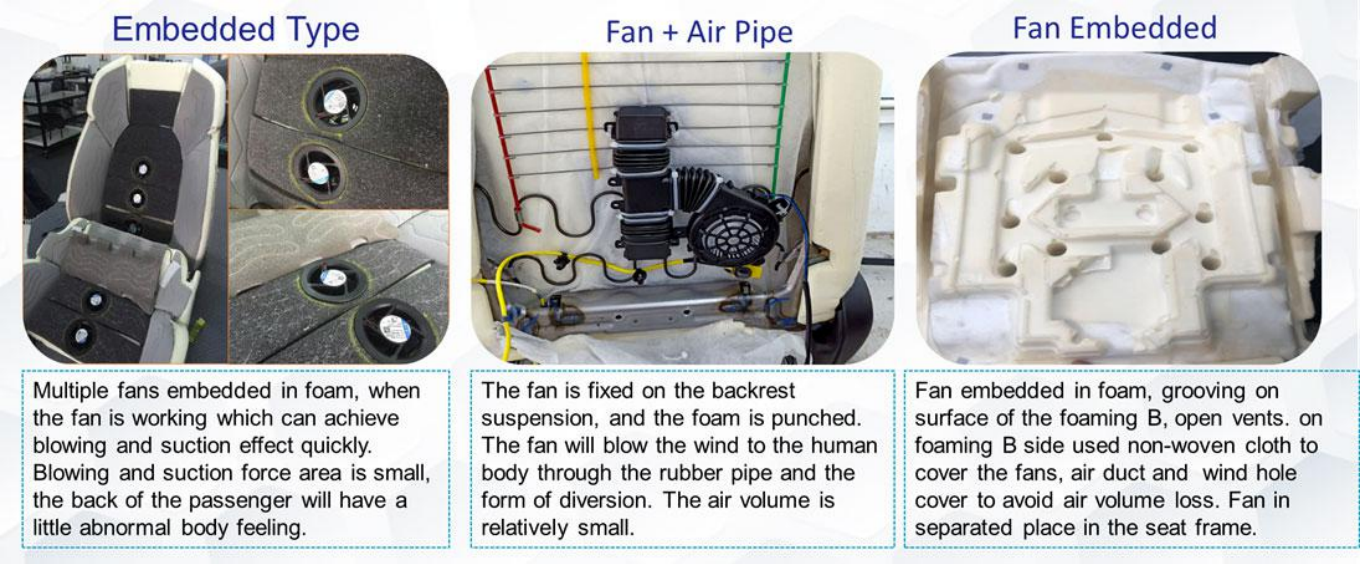
Seat cooling works by using Peltier elements, which are 2-sided devices that get hot on one side and cool on the other when electricity is applied. So these elements can either heat or cool the air before it enters the seat, depending on the direction of the current applied.

Seat heating, ventilation, and cooling are examples of seat comfort systems, or climate seats,which are designed to improve user experience. They are also part of the industry's trends and technology development, as they can offer more personalized and precise comfort solutions.

Ventilated seats may be of the suction or the blower type. In a suction system air flows inward through the perforations in the seat cover; the ventilation system takes away the body heat. In a blower system, airflow is the other way around: the ventilation system directly blows air into the seat and it exits through the cover perforations.

The target of seat cooling is to lower the surface temperature of the seat, providing a cooling sensation to the occupant. This can be particularly beneficial in hot weather conditions. It is not always dependent on airflow; instead, it may involve the use of specialized materials or technologies that dissipate heat effectively.

A closed-loop HVAC system—the kind in refrigerators, heat pumps, and car air conditioners—uses a refrigerant gas (originally chlorofluorocarbon, then hydrofluorocarbon, now CO_2). The refrigerant, in a cycle of changing from liquid to gas or gas to liquid, moves heat from one place to another, such as from inside the car to outside. Generally, unrefrigerated air is used for ventilated seats. The cooled seats are like the air-conditioned seats in that they blow cool air onto the occupants. These systems use internal fans to provide cooling, and a mesh material covering the seat helps air diffuse. The cooled air is then distributed through the mesh covering to keep the occupant cooler and drier.



DESIGN HMI IMAGE

The price of ventilated front seats depends on the type and fabric used. They can cost up to €500, sometimes even more than the standard seat itself.

Climate seats can also reduce the energy consumption of the car's HVAC system, by allowing each occupant to manage their own temperature without using the complete cabin system. Not having to change the temperature of all the air inside the car also means a a shorter 'time to comfort' because of the proximity of the energy source. This is particularly salient in EVs, where car heating is not based on 'free' waste heat from a combustion engine, but rather each degree of heating costs precious battery capacity and therefore vehicle range.

Here is a look at the main technologies and suppliers:

Lear

Lear, a global seating supplier, offers solutions for seat heating, ventilation, active cooling, and other comfort features. Lear has recently acquired two companies that specialize in seat climate control: I.G. Bauerhin (IGB) and Kongsberg Automotive's interior comfort systems activity.

IGB IMAGE

IGB provides innovative solutions for seat ventilation, based on high-performance components. The key to high-performance is the fan. That is why IGB Automotive has taken over the development and production of the fans itself and manufactures on a highly modern production line at their site in Serbia. Depending on the system design, the ventilation function is supported by active Peltier cooling elements. The tuning of the system for minimum noise is carried out in their acoustics laboratory.

Adient Recaro

Adient, a global seating system provider, offers various solutions for seat ventilation:

ADIENT RECARO IMAGE

- Recaro Performance Seat Platform uses a body-shaped composite seat structure and thin 'IntelliTech' foam. This foam integrates attachments for the complete seat application including spacers, optional ventilation, etc. It reduces weight up to 40 per cent and is 50 per cent thinner (8 mm) compared to standard polyurethane foam.
- Ascent by Adient Aerospace is a premium business class seat for airplanes that features heating and ventilation built in to the seat, wireless charging, Bluetooth audio jacks, a sliding door, and a 78-inch fully flat bed.

Forvia

Forvia, a global leader in smart mobility and automotive technologies, offers solutions for seat heating and cooling. Some of their products and features are:

FORVIA IMAGE

- **Faurecia's modular and sustainable seat** is a newapproach that uses a limited number of modules instead of many components. The modules can be easily assembled and disassembled, allowing the parts of the seat to be replaced and new functions to be added throughout its lifetime, such as massage, air conditioning, heat, and other comfort modules.
- **Rethinking next generation electric vehicles**: This is a project that aims to improve the performance of electric vehicles in terms of battery life, powertrain efficiency, and passenger comfort by using efficient thermal management. Cabin and seating heating and cooling is part of that.

Toyota Boshoku

Toyota Boshoku offers a variety of solutions for seat heating. Some of their products and features are:

TOYOTA COROLLA SEAT (TOYOTA BOSHOKU IMAGE)

- Electric radiant heat uses infrared waves to heat the occupant's body directly, without heating the air around them. It can provide faster and more comfortable heating than conventional air heaters, as well as reduce fuel consumption and emissions by minimizing the need for cabin air conditioning.
- Seat ventilation system enables cool air to flow from the seat and seat back on warm days, and warms the driver's shoulders, back and legs on cold days. A compact, high-efficiency centrifugal fan is built into the seat and fabric with superior ventilation characteristics provide a cooler seat.
- Foam In Place Method injects foam directly into the seat cover, creating a more form-fitting seat that can accommodate various occupant shapes and sizes. It also allows for the integration of heating elements or sensors into the foam, enhancing the functionality and comfort of the seat.

Continental

Continental's heated and climate-controlled seats provide the driver and passengers with a warm and comfortable seat in cold weather, as well as a cool and ventilated seat in hot weather. They also enhance the safety and wellbeing of the occupants, especially on long journeys.

CLIMATE SEAT MODULE (CONTINENTAL IMAGE)

Continental's seat comfort systems are designed to improve the driving experience and satisfaction of car users. They are also part of the automotive industry's trends and technology development, as they can offer more personalized and precise comfort solutions.

Gentherm

GENTHERM IMAGE

Gentherm specializes in thermal management and comfort solutions for the automotive industry. Founded in in 1991 as Amerigon in Southern California, in 2011, ithey acquire W.E.T. Automotive Systems to get a global footprint, and in 2022, they acquired Alfmeier Präzision SE, doing lumbar and massage comfort solutions, with deep expertise in advanced valve system technologies, integrated electronics, and software.

Their climate seat uses different technologies to create a personalized and precise comfort experience, such as electric heating elements, fans, blowers, perforations, and Peltier elements. The climate seat can also reduce the energy consumption of the car's heating, ventilation, and air conditioning (HVAC) system, by allowing the occupants to adjust their seat temperature according to their preference.

Gentherm ClimateSense combines smart thermal effectors and human thermos-physiology principles with physics-based software algorithms to create personalized multi-zoned, heating and cooling that reacts to the occupant's needs. This technology is a finalist for the 2023 Automotive News PACE Awards.

iM technologies

India-based iM Technolgies is an engineering services company for design and development of automotive trims and manufacturing. They have now filled a seat-ventilation patent with upfront air to the passenger. It has been developed in context of the hot, humid Indian market.

Embitel

Embitel is part of Cariad, the software arm of VW Group. They develop seat comfort systems, including seat controls and electronics. Activities include:

- System Design for Seat Heating and Ventilation ECU
- Closed-loop system development for heat element (MOSFET) control
- Development of LIN based slave unit to perform heating
- Implementation of temperature sensor (NTC sensor) to regulate heating
- Fan powered ventilation system
- Seat ventilation and heating system can be developed as integrated or standalone components

In summary, while seat ventilation emphasizes the movement of air through the seat to enhance comfort, seat cooling is more focused on actively reducing the temperature of the seat surface. Some systems may combine both features to offer a comprehensive cooling experience. The specific technologies used vary across suppliers and regions.

Interior News

Elektrobit Tool for In-Car HMI Customization

INTERIOR NEWS

Continental subsidiary Elektrobit has a new software tool called the 'Theming Engine', which can customize a vehicle's user interface at any point during the life of the vehicle without need of a software engineer.

Elektrobit says it allows automakers, suppliers, fleet managers, rental car operators, and shared-mobility service providers to personalize the look and feel of a vehicle on the fly, providing opportunities for end-user personalization, potential revenue generation, and enhanced brand loyalty.

The Theming Engine provides design templates and configurations, based on the Android platform, to enable cockpit design teams to produce and apply bespoke interfaces. Elektrobit says it decouples UI design from software development, so creative designers can modify the look and feel of an interface at any point within the life of a vehicle. This, they say, makes it easy for them to create and deploy a variety of themes including brand- or model-specific imagery, text types and colour schemes; updates for seasons, holidays, time of day and anniversaries, geographic positioning such as current location or destination location; and more.

Claimed capabilities include:

- Create dynamic theming for car brands, models, across regions or specific demographics.
- Foster customer identification. Users would have the opportunity to express their own individuality by customizing their cockpit.
- Build custom triggers for theme changes. pushed over the air or accessed on demand
- Accelerate and streamline testing.
- Address regional and local differences.

Magna's Melt-Recyclable Foam and Seating Trim

INTERIOR NEWS

MAGNA ECOSPHERE TRIM FOUNDATION (MAGNA IMAGE)

Magna says their new EcoSphere™ product family eliminates the disposal of seating foam pads and trim covers in landfills. It's an innovative, fully melt-recyclable foam and trim system using mono-material polyethylene terephthalate (PET) to make sustainable trim materials, trim padding, structures, and foam.

The product family leverages Magna's expertise in the integration of foam chemistry, trim manufacturing, craftsmanship and tooling to develop a seamless and affordable solution to maintain the look and feel of the seating materials consistent with industry standards, while significantly reducing the environmental impact.

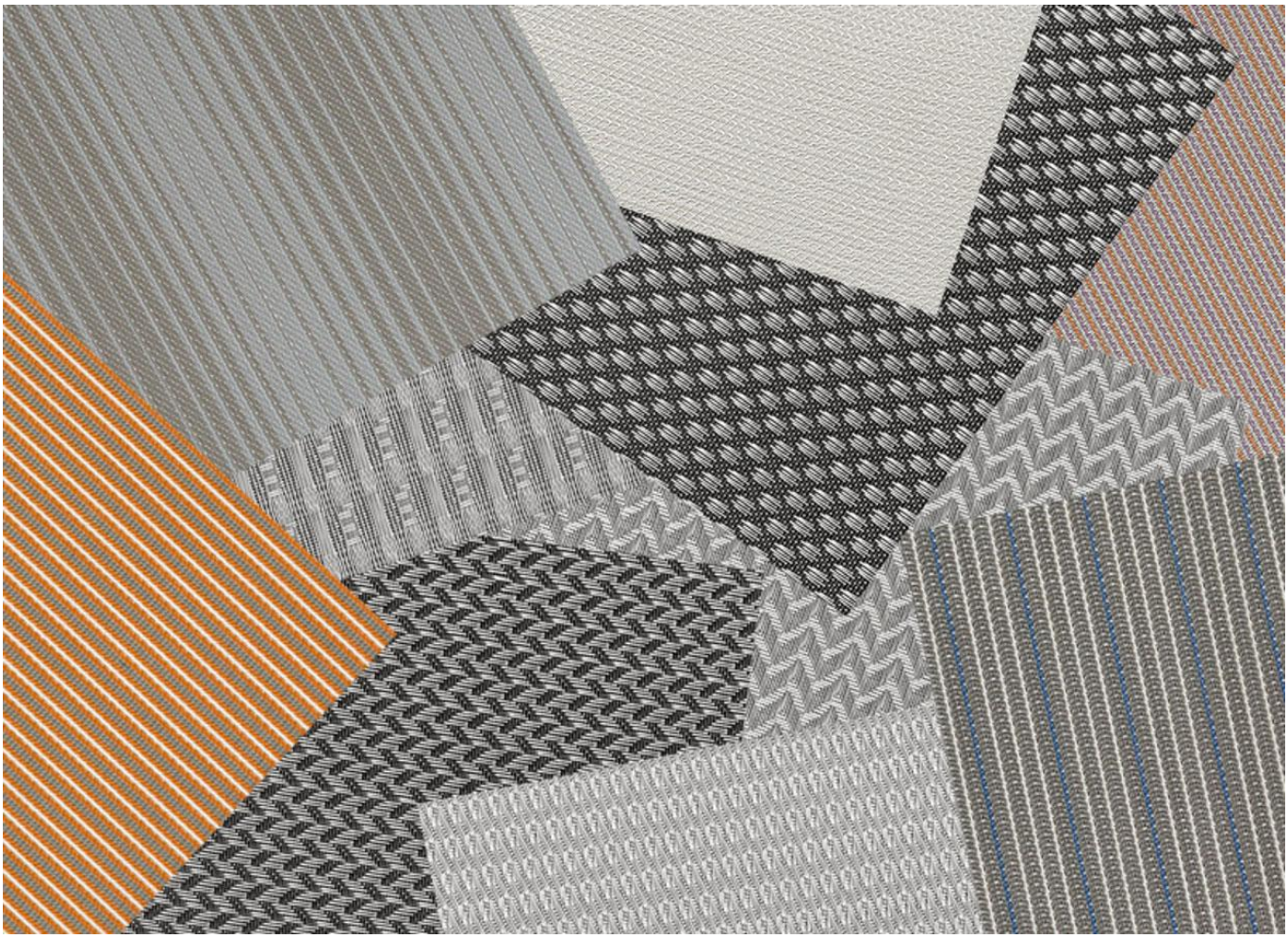
"As a top priority for our stakeholders, we recognize the need for innovative solutions that minimize environmental impact," says Magna's chief seating innovation engineer Carrie Young. "This unique product family enables our seating materials to be repurposed and reused in the creation of new polyester products, contributing to a circular economy approach. Our technology offers automakers a game-changing opportunity to enhance sustainability without compromising on comfort, quality or performance."

Magna EcoSphere Trim Foundation is an essential part of the technology. Trim foundation can be found in every seat produced. It is laminated to the back of trim materials to provide support and a crisp appearance. To source fully recycled materials for EcoSphere Trim Foundation, Magna has partnered with TWE Group, a multinational company that specializes in manufacturing technical textiles and nonwovens. TWE's rePEaT® solutions include products made from recycled and biodegradable fibers.

Magna's sustainable seating approach contributes to the company's net-zero goal by using recycled and bio-based materials, implementing energy-efficient manufacturing processes and considering end-of-life management. This reduces greenhouse gas emissions and lowers the carbon footprint of Magna's products.

Haver & Boecker's New Woven-Wire Cloth

INTERIOR NEWS



HAVER & BOEKER IMAGE

Haver & Boecker is based in Oelde, Westphalia, Germany. Founded in 1887, they have been producing woven-wire cloth for vehicle interiors for many years. Through interaction with Interior Designers, they've created a collection of new patterns and colors, called Haver Structura Flair.

Pinstripes and chevron patterns can be catered for with the new range. So can multicolor patterns, thanks to the use of interwoven stainless-steel wires coated in PET monofilaments using a broad range of colors. Patterns can be regular or irregular, and design mesh can also be specified with different optical properties, either transparent or solid yet still possessing the ability to transmit light from back illumination.

According to the company, this broad range of finishes and textures means this stainless-steel wire mesh, associated with elegance and high quality, is an attractive alternative to other furnishing elements such as textiles, leather and wood. Meanwhile, with an average fabric thickness of just 0.5mm, the material can conform to complex three-dimensional forms.

Recent test results demonstrate the low VOC emission values of the design mesh, key to reducing fogging—the condensation of volatile materials such as plasticizers that can degrade IAQ and fog up the interior of the car's glass.

Elmo, Circularity, and ‘Zero-Waste Leather’

INTERIOR NEWS

ELMO IMAGE

Leather surface alternatives are blossoming in car interiors, but the traditional leather industry keeps improving their product and processes towards sustainability.

All material suppliers create waste of some kind, and in many cases scrap material could be used elsewhere. Swedish supplier Elmo says their 'zero-waste' approach offers a circular solution for those who still want genuine leather. They take a meat and dairy industry byproduct and transform it into premium leather. All process waste is upcycled and re-used by other industries, meaning nothing ends up as landfill.

Elmo's tannery and production facility in Svenljunga uses renewable energy, completing the loop in Elmo’s 100-per-cent circular manufacturing methodology. This is significant when considering the amount of waste that would normally be created. At the start of the process, the initial rawhide might weigh between 40 and 55 kilos, but that would only produce around five kilos of actual leather.

John Olsson, the sales and marketing director at Rino Mastrotto Group, the parent company of Elmo, explains, that the organization considers the entire production process and ultimately does things that other leather suppliers cannot. For example, various components are processed into fertilizers or biogas for vehicle operation. Remains from the tanning process are used for energy recovery and leather offcuts are used by other parallel industries, schools and artists.

But this is a product after all and must offer more than just sustainable credentials; customers want a beautiful, long-lasting product too. Real leather has a long track record on both counts. “At the very core we provide authentic luxury, a natural material with a lingering touch and superior comfort that nourishes the senses,” says Olsson. “It enables you to take the comfort of your living room on the road.”

As things stand, 71.3 per cent of Elmo’s process waste is upcycled, with 27.4 per cent put towards energy recovery. Moving ahead, the aim is to push the rate of upcycling even higher—to about 90 per cent.

ZF's Smart Image-Recognition Airbags

INTERIOR NEWS

ZF IMAGE

Starting in 2026, changes to EuroNCAP crash tests and international regulations are on the horizon to end decades of unequal treatment of car occupants. "The main aim here is to take greater account of differences in weight, stature, and gender," says Rudolf Stark, head of the Passive Safety division at ZF. "With a child, for example, you shouldn't tighten the seat belt as much as with an adult, because the body can only absorb small forces," Stark says. “On the other hand, the seat belt tensioner can and must intervene much more forcefully in an overweight adult in order to keep the extra kilos under control.”

There are also fundamental anatomical differences. For example, female torsos usually have a different center of gravity than male torsos, which influences the reaction to a crash. Studies show that women suffer chest injuries, probably from seat belts and airbags, more frequently than men. The risk of life-threatening injuries is even 30 per cent higher.

To this end, ZF has developed image recognition software that can see and estimate how large and heavy the vehicle occupants are via the interior camera found in all new cars. "Using this prediction, we calculate how the airbag must inflate to provide a very good protection for the occupant during the impact. The gas volume used as well as the airbag outflow openings—and thus the hardness of the airbag—will also be controllable in the future," says Stark. The same applies to the seat belt tensioner, which may also not always trigger with the same intensity.

In addition to more flexible control of airbags and seat belts, the coordination of passive and active safety systems opens new possibilities. For example, in order to make optimum use of the restraint systems, it helps to know from which side an impact is coming. Radar, camera, and ultrasonic sensors detect this milliseconds before the actual collision. If a car hits a truck today, for example, the acceleration sensor registers a signal and triggers the airbags with relative stubbornness.

DVN Interior **recently reported** about the first crash test dummy modelled for the female body.

Toyota Designs Baby Lunar Cruiser EV

INTERIOR NEWS

TOYOTA IMAGES

The electric Baby Lunar Cruiser is “built to conquer rugged terrain on Earth and beyond,” Toyota claims. The electric Moon Rover takes cues from the real Lunar Cruiser Toyota is developing with the Japanese Aerospace Exploration Agency (JAXA), and from the FJ40 Land Cruiser of the 1960s and '70s. The FJ40 Land Cruiser was once Toyota’s best-selling vehicle in the US, known for its durability and off-road capabilities. Toyota took the iconic rugged 4×4 design and infused it with “the futuristic capabilities of an interplanetary exploration vehicle.”

The Moon Rover is propelled by in-wheel electric motors and controlled by joysticks. Meanwhile, airless tires make it easy to move around. While adventuring, you won’t miss any sights with a glass canopy and a panoramic, augmented reality dashboard display. Meanwhile, the inside features adjustable spaceframe states, a massive single-panel display, and MOLLE panels throughout.

MOLLE panels are organizational grids that allow you to attach and hold different pieces of gear. MOLLE stands for Modular Lightweight Load-carrying Equipment, and it can be found as a laser-cut panel with channels or as rows of nylon loops called PALS webbing. MOLLE panels help you keep your gear organized, easily accessible, and secure on backpacks, vests, or other surfaces.

The Design Lounge

Geneva

THE DESIGN LOUNGE

COFFEE CORNER
DVN
Interior

By Athanassios Tubidis

It was my first trimester of sketching and building models and the excitement was such that long hours were becoming the norm. One of those early mornings, I thought I saw Uwe[1] in the workshop. In his immaculate blue-black suit and shiny shoes, he was more of a fit to an evening venue than to the dusty surroundings. I wasn't prepared for such encounter with the king himself, that he rapidly advanced and handed me a ticket: 'here ya go', first come first served', indeed I was the only one in the building, and while walking back towards the parking he mingled something like '...don't be late!' Then got in his black Ford Sierra Cosworth and left the opposite way he'd usually do. Paper thickness, illustration and printing quality, of the specific ticket, were certifying that this was a higher order. Very soon, transportation-design teachers arrived all dressed up as if preparing for some presentation and, before even good-morning, they reassured me there was an empty seat in the back of Pinky's[2] Porsche. I took the offer instantly, without knowing what was all about, while changing right in the parking my workshop clothes. We left The Chateau[3] and its intense upcoming day activities, running the opposite direction of all students that were entering to take on their courses. The four of us, into Pinky's 944 turbo (that drove better than it looked, as he often stated in a self-sarcastic mode) heading to some sort of mystique venue above and beyond any class, any project and schedule, any teacher or grade and any written absence-note to the school. So cool! It was my first year in Art Center and about to discover the press day in Geneva motor show.

1989 was also the year Lexus was born and the first LS400 was launched. That year, Alfa Romeo SZ (also named ES-30) manufactured by Zagato, was unveiled by Alfa Romeo and Fiat design studios and its unusual design remained an archetype - attribute to early computer-aided design (CAD) and manufacturing.

I had just discovered the holy grail of car design. The following year, Porsche 911 turbo was introduced and Pinky would take the time to explain every single section and highlight of the rear fender, his approvals, and objections. In 1991 and after 10 years of development, Mercedes Benz S Class was there. In 1992 - year of my graduation - Romano Artioli relaunched the Bugatti brand and the EB110 Super Sport was presented by one of its first owners, Michael Schumacher. In 1994, Audi reinvented itself under Ferdinand Piech's administration, and in 1995, the utterly hard-core and ultra-desirable – with no assistance for braking and steering - Ferrari F50, was unveiled on the brand's golden 50th. Geneva 90s concluded with the launching of 911 GT3, with its "Mezger" naturally aspirated engine based on 962 and 911 GT1 racecars.

By then on, instead of just visiting the show, I already had my place at a stand and my specific project, often presenting a design case study. But Geneva was a lot more than that. It was a shared story with many other designers, my colleagues by then, of a different Art Center promotion, or different design schools and design generations. Some of them had been there in 1984 when Ferrari 308 was badged GTO, by many considered the first Ferrari supercar that paved the way to F40, F50, Enzo, LaFerrari, while others were there, to see for the first time Audi Quattro in 1980. My tutor A.Lapine[4] had been on stage in Geneva 1977 presenting his unique and groundbreaking creation for Porsche, the 928. Other strong moments included Maserati boomerang in 1972 and BMW Turbo Concept designed by Paul Bracq, who I also met for the first time in Geneva. Unique emotions surrounded the 1971 Lamborghini Countach, one of the most iconic supercars of the 70s and ever, Citroen SM and Alfa Romeo Montreal in 1970, Porsche 917 (1969), Lamborghini Miura (1966) and, the most beautiful car ever made, according to Enzo Ferrari himself, the E-Type Jaguar (1961), presented after its journey from Coventry all the way to Geneva motor show. My beloved, clay-teacher, 'grandpa' A.L.Hall[5] from Coventry, was there and told later many hands-on stories while stretching clay together over my model, perhaps the reason why my 5th term project became a Jaguar speedster. This is as far as I reached in my time by meeting professionals of many different generations, joining them for every year's show from then on.

A little bit German, a little bit French and a big part unique, as often stated, the Geneva motor show, kept revealing the future ever since 1905 and went on with Aston martin AMV8 Vantage concept (2005), Porsche 918 spyder concept (2010), Ferrari Laferrari and McLaren P1 (2013) and so on until Bugatti La Voiture Noire in 2019, before everything stopped, suddenly. Geneva 2020 never happened.

Its return this year in Qatar was the subject of many debates and controversies. Meanwhile, Geely and Lynk&Co had an important presence. Chery was staged with its Exeed, Omoda and Jaecoo brands. Most of the Chinese brands offered a range of electric powertrains, yet high petrol prices are not an issue over here. Maybe the most important message of Geneva International Motor-show, this time, is strictly about the specific place, far from Europe. When you look up at the sparkling, futuristic skyline of Doha growing out of the desert, it's a reminder that Qatar has its way of crafting something out of seemingly nothing through a combination of substantial investment and pure willpower.

Car design is like designing a unique label at every single time and that is exactly what Geneva motor show turned out to be over the years, one of the most prestigious automotive venues. The Qatar edition, contrary to many debates, is not a matter of comparisons or rivalry with its legacy. It is much rather a powerful storyline projected to new approaching automotive moments in time, celebrating, car culture and excellence beyond borders.

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1 Uwe Bahnsen: Ford Europe vice president and Art Center (E) director, Bahnsen was recognized as one of the most influential European automotive designers of the 20th Century.

2 Pinky Lai: Porsche chief designer and Art Center transportation-major teacher; after his design achievements in Ford, BMW, in 1989 he was invited to join Porsche AG.

3 The Chateau: Art Center Europe opened in the late 80s at Chateau de Sully, (so called 'the chateau') Route de Chally 144 CH-1814 La Tour-de-Peilz, on Lake Leman, approximately 60km to Geneva.

4 Anatole Lapine: Visiting professor in Art Center (E) after his design career in General Motors and Opel, on 1969 became chief designer at Porsche.

5 A.L. Hall: 'Albert' or 'the Royal' or 'grandpa' was one of the most experienced clay modelers in the industry at the time, having seen clay arriving in the European studios. A great part of his career was dedicated to Jaguar.

Kia EV4 Concept, Novel Sedan Type

THE DESIGN LOUNGE

Kia has a new EV concept, the EV4 sedan, very different to anything in the existing Kia range.

The car's overall shape could be described as a rolling polygon. The headlights are inspired by LeMans prototype racecars, with their extreme side offset and ultra-narrow vertical arrangement.

Apparently, it's quite a tall vehicle, something in between a CUV and a typical sedan. The design and proportion are well balanced.

Inside, we find a futuristic and warm atmosphere, with angular lines that echo the exterior style. The floating dashboard is stretched horizontally, and extends onto the doors with a sophisticated lighting signature. There is a large panoramic panel serving as an instrument cluster and infotainment screen, or a two-spoke steering wheel with a futuristic style as well.

A few specific features allow you to push the purification to its maximum, such as the air conditioning control panel which can be hidden in the central console when not in use. The interior offers a "cocoon" atmosphere to its occupants, as well as "Mind Modes" which adjust the ambient lighting and ventilation. In "Perform" mode, the driver receives all the information they need to drive efficiently, while "Serenity" mode helps create a more relaxed atmosphere, conducive to reflection and relaxation.

The interior of the Kia EV4 Concept is inspired by the Earth: natural dyes have been applied to 100-per-cent recycled cotton, using madder roots and walnut shells, offering an almost infinite range of tones and hues. Strips of fabric were woven by hand, then applied to the storage space and the dashboard: an artisanal approach which creates an elegant and rewarding 3D effect.

Kia has chosen natural materials on board, such as hemp fibers. Marília Biill, Kia's CMF design manager (Color, Materials, Finish) says, "Hemp is a fast-growing plant that requires few resources to cultivate. Not only is it highly durable, but it is also highly moldable, meaning it is a very versatile material to work with, and it further enhances the EV4 Concept's cabin with its beautiful rich color".

We can expect, same as on recent EV5, infotainment supported by OTA updates, and a widescreen heads-up display.

News Mobility

Luvly O: A Flat-Pack, Light Micro Car

NEWS MOBILITY

LUVLY IMAGES

Stockholm-based startup Luvly, founded in 2015, says their ready-to-assemble EV, the O, is so small and light that it can significantly reduce the carbon emissions associated with shipping.

In addition to the novel flat-pack delivery, Luvly is hoping the O's other features, including its super-light frame and swappable batteries, will make sustainable transport more affordable, says CEO and cofounder Håkan Lutz.

Weighing under 450 kilograms, the O has a range of 100 kilometers and a top speed of 90 km/h, which Lutz says is more than enough for most commutes and daily trips in urban areas.

These cars aren’t likely to be your next DIY project, though, says Lutz: to be road legal, they will need to be assembled by a licensed car plant before being delivered to customers.

Although self-assembly is not required, IKEA has been a big influence. Lutz says Luvly is trying to do for cars what IKEA has done for furniture, with “good enough quality and very nice design, cheaply and efficiently for everybody.”

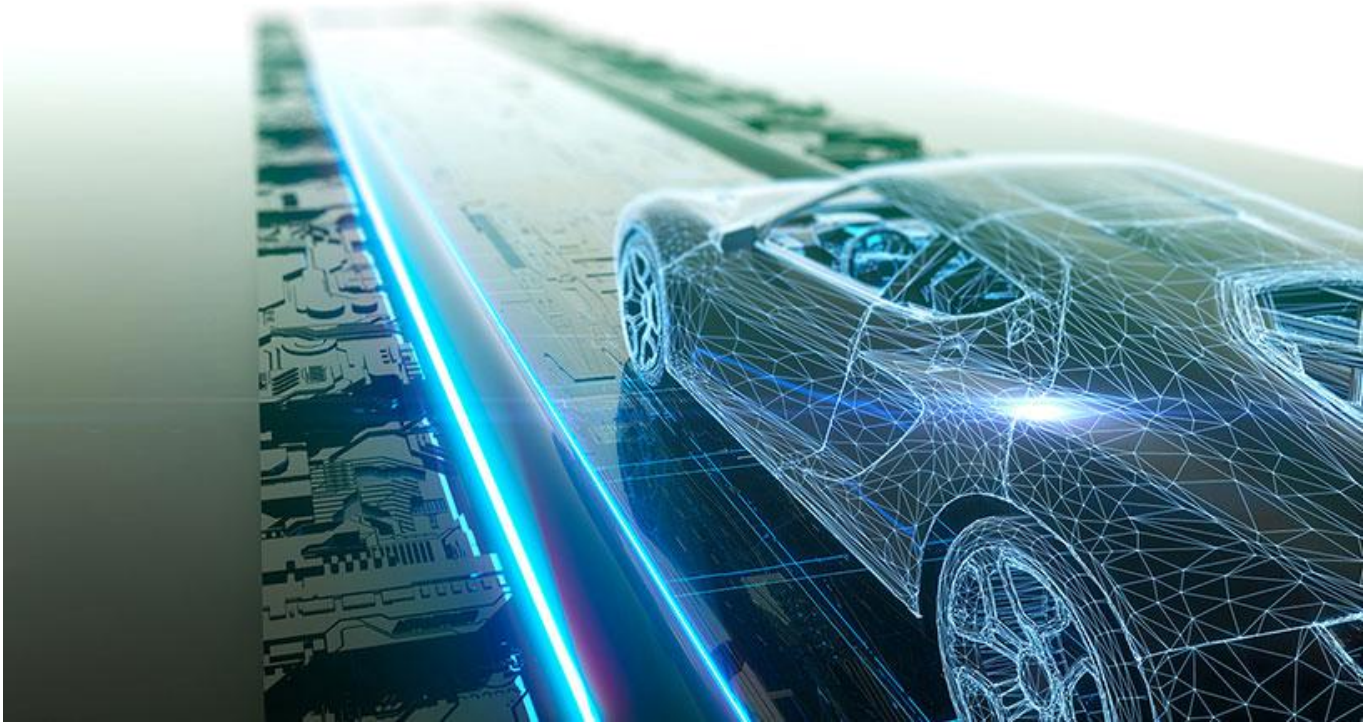
For safety, Luvly took inspiration from Formula One cars, which are built with a light but strong chassis. The Luvly O's frame has a "sandwich structure" with a layer of aluminum padded on both sides by lightweight plastic foam. Lutz says if the car crashes, the force will be absorbed by the padding and protect the driver.

Luvly's patented chassis uses a flat-pack system, allowing more cars to be shipped per container and cutting each vehicle's delivery emissions.

Luvly is still testing the Luvly O prototype but hopes to launch the car next year with a price tag of around €10,000, says Lutz.

ASAP, Detection of Anomalies in Measurement for ADAS

NEWS MOBILITY



ASAP IMAGE

With the data science tool ASAP, the independent engineering subsidiary of HCLTech, wants to develop an assistance system for test engineers that works with machine learning and statistical data analysis. The tool is intended to automatically detect anomalies in measurement data, for example in the development of highly automated driver assistance functions. All measurement data from different data sources such as test systems, component, and system HILs and data from real driving tests are evaluated with regard to conspicuousness. This should bring time and cost benefits to the automotive industry, as development teams no longer have to spend time searching through trace data.

The tool checks the data for typical sources of error such as formatting errors or possible duplicates. In addition, the signal values are statistically analyzed to identify violations of signal specifications, for example. During the calculation, data points that logically belong together are combined into sequences based on the prepared data set. Non-relevant data is removed, enabling faster computation. The AI enables automated calculation of the distances between all data points, which are clustered and evaluated for statistical anomalies. For a better understanding, the tool visualizes the result in a highly simplified way in 3-D. The ASAP Group receives funding for the development from the German Federal Ministry of Education and Research.

General News

Inova and ISELED Founder Robert Kraus Dies Unexpectedly

GENERAL NEWS

Robert Kraus, CEO and Founder of Inova Semiconductors, passed away shortly ago. Our thoughts are with his family and his friends. We are sad to have lost a great friend and member of our DVN Community.

In 1999 Robert Kraus founded Inova Semiconductors in Munich with the vision of developing ICs for serial high-speed data transmission. The vision became reality with persistent work, tireless dedication, fun with technology, extensive competences in very different fields, and above all, fun in dealing with people.

Kraus benefited from the fact that he was never just an engineer, but pursued many interests. During his studies, he worked as a journalist on the side and got a profound knowledge of the importance of public relations and how media work. This became obvious when he announced the first breakthrough for Inova at a press conference in Munich in 2007: "BMW and Fujitsu set their sights on APIX," read the page 1 article in Markt&Technik. At that time, Inova became known beyond the borders of insiders for the first time, even worldwide. In particular, the innovation-happy Asian car manufacturers became aware of Inova.

Robert Kraus was also a founder of the ISELED Alliance with the idea of integrating sensors and actuators into ISELED and creating the "ISELED Light and Sensor Network" (ILaS). Again, Asian companies were particularly receptive to bringing the new technology into their cars quickly, so that also this region has developed into an interesting sales market for Inova.

Robert Kraus leaves behind a big gap, not only at Inova, but also with his family and among his friends and acquaintances, as well as the entire electronics industry. We mourn the loss of Robert Kraus who was able to turn his visions into reality with courage, foresight, and competence, and who leaves behind a great life's work.

Cristina Blanco Santo Tomas is New Antolin CEO

GENERAL NEWS

The Board of Directors of Antolin has unanimously approved the appointment of Cristina Blanco Santo Tomas as the company's new Chief Executive Officer, replacing Ramon Sotomayor Jauregui.

She will be responsible for fast-tracking the company's ongoing transformation process designed to position it as a leading supplier in developing technological solutions for automobile interiors as part of the new electric mobility. The transformation plan, which she has helped to map out as Antolin's Chief Finance Officer and a member of its Executive Committee, seeks to generate greater value in its current business while the company builds a long-term profitable and sustainable growth project.

"Cristina has extensive experience, in-depth knowledge of this company, and the leadership skills required to lead the new stage we have embarked on at Antolin, driving forward the main strands in our transformation plan," said Ernesto Antolin, Antolin's Chairman. "She will have the full backing of the Board of Directors and also that of a world-class team, which is committed to being closer to customers as their key partner; developing more innovative technologies and solutions; making our operations more efficient, and most of all to growing profitably and sustainably as our main target".

"I am proud and thrilled to take on this new and exciting challenge in a company where I have spent my entire professional career and which I have seen become a world-leading supplier to the automotive industry," Christina says. "In my view, Antolin means cutting-edge innovation, quality service, and a global and competitive industrial network, yet primarily it is a first-class professional team. Its 24,000 employees are the mainstay of this company and its greatest asset in achieving all our goals".

Christina has been a member of the Antolin team for over 22 years. She graduated in Economics and Business Administration at UNED, completed the Executive Program at Esade, and is a lecturer on the MBA programs at the University of Valladolid and IE Business School. In 2016, she became Antolin's Chief Finance Officer and thus took part in the financing process to acquire Magna Interiors, the largest transaction in the company's history.