Thu, 8 June 2023
Weekly Newsletter

DVN-I
Automotive Interior

NEWSLETTER #164

Editorial

Get Ready For DVN Triple Workshop At San Francisco!

The grand U.S. DVN Triple Workshop awaits you in San Francisco on 29-3 August, including an interior Deep Dive centered around the theme *Interior Lighting and Beyond*. Interior lighting is contributing and interacting for user experience; safety; HMI, and comfort in the car interior. The DVN Lighting; Interior, and Lidar Workshops will be held in parallel at the same venue, providing an unbeatable opportunity for lectures; presentations; exhibitions, and networking.

In this week's In-Depth article, we're looking at generative artificial intelligence and its constellation of technologies, which will surely be crucial for the future of the automotive industry and autonomous driving.

In Interior News, we bring you coverage of DMS as AI-driver in cars; Android updates for infotainment and navigation; the highlights of the new BMW i5 and Kia EV9. We've got news for you about the Innolux Cinema Display; the Volvo Sound Design; Ambarella; Autobrains, and Seeing Machines.

You'll also find two lenses to look at the Hyundai Pony revival—one in the Design Lounge, and the other in the Coffee Corner—and there's more news about autonomous parking and driving; stable AR and VR in all driving situations, and the new partnership of Waymo and Uber.

Furthermore, we details on the pact Renault and Valeo have forged for software-defined vehicles; Akkodis as development partner for BMW, and Mocom under new management.

We hope you will enjoy the Newsletter. As always, we're here for you, always ready to hear your feedback; requests, and comments. Not yet a member? Come **join in**.

Sincerely yours,

Carsten Befelein
Consultant, DVN-Interior

In Depth Interior Technology

AI / ChatGPT - Technology to Change Driving?

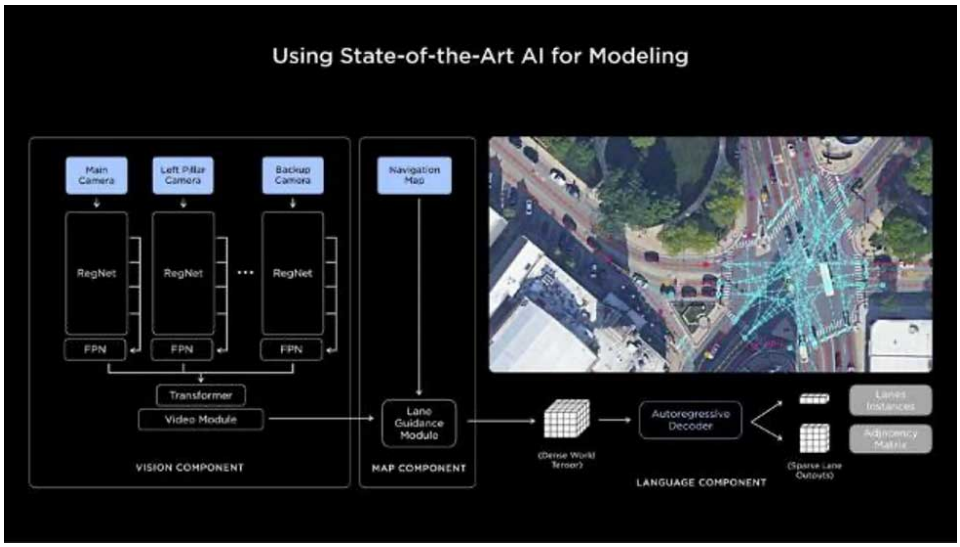
This time it's generative AI; specifically, Musk's new "TruthGPT" project. Will it really save the world, like he says? Well, h'mm; will "Full Self Driving" ever be an accurate description of a Tesla, like he's been promising for the last nine years? In any event, generative AI technology could be crucial for Tesla's 'Autopilot', and perhaps for the future of the auto industry.

With his latest startup X.AI, Musk says he'll develop a "new artificial intelligence". He calls it "TruthGPT" in reference to ChatGPT, the text generator from Microsoft partner company OpenAI. Since its presentation in the fall, the world has been discussing the opportunities; risks; threats, and hazards of this type of generative AI.

Just what is "generative AI"? It produces content; chat responses; designs; synthetic data; or deepfakes, modelled; composited, or imitated from input of whatever type of output will eventually be requested. ChatGPT, for example, was fed mass quantities of text so it can spit out text that looks and feels like what it was fed—no guarantees on accuracy, veracity, or applicability. That's not the same as 'regular' AI, which is more about discerning patterns; making decisions; refining analytics, and sorting data. And it's wise to bear in mind many subject matter experts wish the term "AI" weren't being thrown around so much as a buzzword, because it distorts public perception of today's problematic, unintelligent technology and legitimate, real artificial intelligence is still years in the future. Nevertheless, the term is being used - rightly or wrongly - so use it we must.

Perhaps generative AI models like those in ChatGPT could play a role for all fully autonomous driving systems. Musk claims to be taking a special approach to autonomous driving that no other automaker is pursuing. Tesla scorns the firm, broad consensus among experts that radar and lidar are crucially necessary for an effective, safe, real self-driving car, so Teslas have to navigate using only camera images. As a result, Teslas have been racking up a track record of behaving badly in traffic and causing crashes, including fatal

ones. For nine years and counting, Musk has been promising to launch fully autonomous vehicles by "the end of the year" (or "next year", or "within two years") - and has repeatedly broken his promise. Will this generative AI fling be yet another fatuous promise, or is it the golden ticket?



TESLA IMAGE

AI could significantly improve the interpretation of camera images: "*In the future*, this technology could lead to a quantum leap for autonomous driving," says automotive expert Peter Fintl from the consultancy Capgemini.

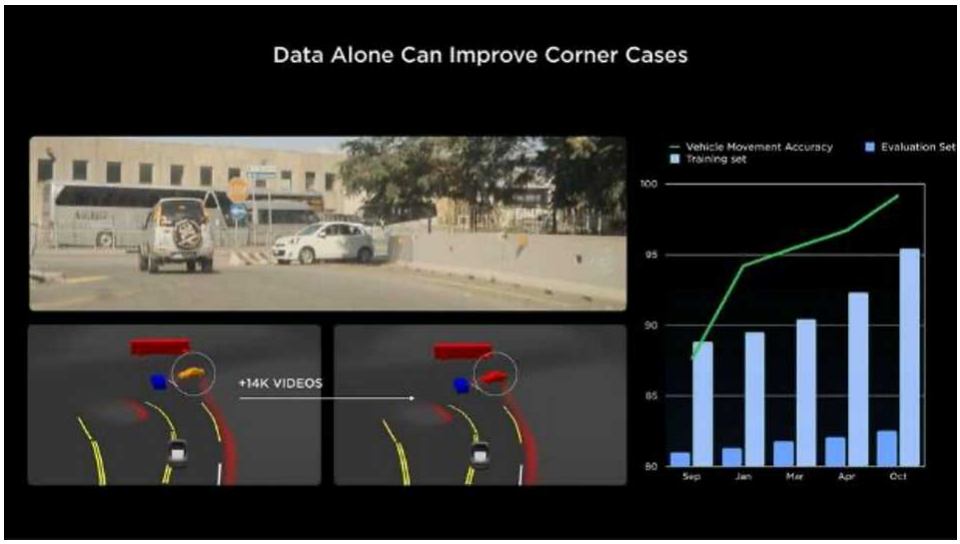
The important keyword is transformers. These novel algorithms are at the heart of language models such as ChatGPT, and they have numerous advantages over previous models. "Transformers are able to reconstruct meaningful content from unlabeled data," says IBM's AI chief Rob Thomas. Transformers don't just interpret data that has been pre-classified by armies of human employees over the past decade of AI development; They also claim to process abstract data, such as traffic signs or vehicle outlines.

If it works, that would give models the context they need to make today's applications possible. "A transformer is the basic component in the basic models of the next generation of AI," Thomas believes. The example of ChatGPT shows what the new algorithms can do in practice. The AI can analyze and classify large amounts of text more quickly, and it can spit out essays or poems that sound human-like. It's a bit like an actor who can stand on a street corner watching and listening as all kinds of people go by - construction workers; lawyers; doctors; beggars; taxi drivers—and then can make the right appearance; poses; gestures; clothing, and tones of voice so as to sound exactly like whichever kind of person someone might ask for, without having to read a bunch of training material specific to that kind of person. Of course, the actor can't actually *be* a lawyer or a cab driver or a doctor, just look-act-sound like one.

But it's not just the new analytical capabilities of transformer algorithms that promise breakthroughs. Their generative capabilities could also help with autonomous driving—perhaps by training the 'Autopilot' computer before it has to prove itself on the road. Here, too, GPT is the comparator. The P in GPT stands for "pretrained"; the G for "generative". Transformers can generate texts; sounds, or images. This allows them to generate synthetic (artificial) traffic data, such as stop signs in snow or rain. These images can be used to train and improve vehicle computers.

Every Tesla vehicle has eight cameras looking at traffic, and filming it - at least, filming **what they can see**. They deliver dozens of images per second, which Tesla's Generalized Vision System has to evaluate. The system thus produces enormous amounts of data. Even a postage stamp-sized photo can have more than 65,000 pixels.

Tesla collects image data from 'Autopilot', which was introduced in 2015, and 'Full Self Driving', which was launched in 2016. In the FSD deployment alone, Tesla has data from about 320 million kilometers driven. Tesla says it has stored more than 160 billion images. "Nobody else has that data edge," Musk gloats. "Anyone who knows about AI understands the importance of data." Musk has been investing in AI at Tesla for many years, building what's claimed to be one of the world's most powerful computers, the Dojo. For X.AI, he hired AI expert Igor Babushkin, and is buying large quantities of chips from Nvidia.



A TESLA SELF-BRAKES IN RESPONSE TO A *PARKED* CAR—ONLY WITH EXTENSIVE TRAINING WILL IT QUIT DOING THAT.

According to Yaniv Sulkes, automotive VP at AI chip developer Hailo, the new GPT models will provide major advances, and the entire auto industry is looking at them. "With some of these transformers and enough data, they'll reach a level of image recognition equivalent to a human", Sulkes says. But they aren't the solution to all autonomous driving challenges.

Sulkes doubts that transformers will solve the most difficult problem: the "long tail," the many "edge cases," or particularly challenging and unique situations in traffic, for example in heavy snow, rain or fog. In these situations, additional sensors will still be needed, even in the future—not just cameras, Sulkes warns.

'Artificial intelligence' processes and methods are, at least in theory, the key to autonomous driving. So far, however, autonomous vehicles are still getting it wrong in encounters with people on urban streets. This is because the autonomy methods used to date still lack robustness. Hopes rest on progress in the field of computer vision in particular. For an autonomous vehicle to develop a holistic understanding of a visually presented scene and act accordingly with at least some semblance of intelligence, it must learn to semantically weight the components of a scene. Which pixels in an image belong to people or objects in the foreground of a self-driving car's environment? And which pixels represent the cityscape? (And if this problem gets solved, won't it immediately render useless every CAPTCHA on the internet?)

IMAGE: BERKELEY DEEPDRIVE, ABHINAV VALADA

In contrast to panoptic segmentation (above, center), amodal panoptic segmentation (right) detects entire objects including their occluded areas in the original image (left).

The scene-understanding task can be solved using 'deep learning', a subdiscipline of 'machine learning'. In most machine learning methods, including deep neural networks, the learning process follows the scheme of three steps: prediction; loss, and optimization. This tool can be used to process complex data such as images or texts. Based on existing information and the neural network, the deep learning method can repeatedly link what has been learned with new content, and the machine thus learns to make forecasts or decisions independently—as well as to question them.

Meanwhile, Abhinav Valada and Rohit Mohan of Berkeley DeepDrive have achieved another milestone on the road to humanlike perception for self-driving cars: they've proposed an 'amodal panoptic segmentation' task and shown its solvability in principle. We humans have the remarkable ability to perceive objects as a whole, even when parts of them are occluded. This ability, known as amodal perception, is the link between our perception of the world and its cognitive understanding; it enables us to cope with everyday life (imagine if a car blocking the bottom half of a tree from your view made you unable to understand that it's a tree).

ChatGPT is banned in China. However, local IT companies are working on alternatives intended to give a boost to the local automotive industry in particular. Now, the launch of a new ChatGPT-like "Large Language Model" (LLM) is causing a new flare-up in the debate. Chinese company iFlytek introduced a counterpart to the ChatGPT AI on May 6. Right from the start, the developers made it clear that their product not only aims to improve speech recognition in the cockpit, but would also be useful for industrial tasks in the automotive industry. iFlytek not only wants to improve the driving experience with its "Spark Desk", but also revolutionize the research and development, design and manufacture of cars.

AUTOMAKERSS LIKE NIO ARE LOOKING TO GET CLOSE TO SOFTWARE COMPANIES WITH AI EXPERTISE (NIO IMAGE)

Chinese auto portal Gasgoo writes that the use of these AI forms "will soon bring about fundamental changes in R&D and production models in the automotive industry". For example, it says, the learning capabilities of LLM tools and their ability to network with existing databases will strengthen and accelerate R&D in the auto industry, including by allowing more scenarios to be tested in less time than before during the development phase.

Engineers in the automotive industry are already well advised to test cooperation with LLM tools in the design, development and production of software-defined cars, according to various Chinese trade media. LLM will once again fundamentally change the depth of interaction between man and machine - in this case, the car in the cockpit. In other words, thanks to LLM, the voice assistant in the cockpit becomes an intelligent co-driver who perceives the environment and makes decisions together with the human driver and the autonomous driving assistance.

Some experts predict that the technology will also increasingly operate like its own operating system, which in the long term could make many apps currently integrated in the cockpit superfluous. Some touch functions will probably become obsolete, and HMI delivery will change. Drivers will then be less and less needed for driving functions, and will be able to devote themselves even more to the entertainment functions in the rolling-living-room car of the future.

Since LLM also enables better access and faster processing of big data, the possibilities for a wide variety of V2X applications will increase at the same time. Individual vehicles could be even better networked with smart cities and their traffic control centers, which could theoretically improve road safety and its effective management.

Interior News

Driver Monitoring Systems Pave the Way for In-Car AI

INTERIOR NEWS

MAGNA IMAGE

Some driver assistance systems have been mandatory for newly-type-approved cars and trucks in the European Union since July 2022. These include a drowsiness warning system. From July 2024, this and other systems will be mandatory for all new vehicles, even those type-approved before the mandate. If a model has automated driving functions, the manufacturer must also monitor whether the driver is positioned and paying attention and ready to resume control.

The EU regulations basically distinguish between two systems: E2 (warning systems for drowsiness and declining driver attention) and E3 (advanced warning systems for declining driver concentration). At the moment, the relevant category is E2. The EU uses the Karolinska Sleepiness Scale as the basis for assessing the driver.

How dangerous microsleeping and drowsy drivers are cannot be precisely quantified. The mobility magazine from bussgeldkatalog.org assumes 40 per cent of all nighttime accidents are due to very tired drivers. The magazine refers to data from the German Society for Sleep Research and Sleep Medicine. It also assumes more than twice as many people are involved in road accidents due to microsleep than to impairment by alcohol.

In the future, it will also be necessary to detect whether the driver is able to resume control during an automated journey. According to the EU regulations, two criteria must be met independently of each other within 30 seconds: for example, blinking and conscious head and body movement.

Harman offers a DMS which they say offers significantly more functions than just detecting drowsiness. The system goes beyond simply checking the direction and intensity of eye gaze. With a high-quality camera running at around 60 frames per second that can also optically measure the pulse and a possible integration of smartwatches, Harman wants to determine the driver's cognitive load.

Harman engineers say they have developed a technology to detect whether not just the driver's eyes, but also their thoughts and attention are on the task at hand. "Do you look or do you see?" is how Harman ADAS product engineering director Anil Hariharakrishnan explains the difference. Anyone will understand who has

ever held up a wristwatch or phone, looked to check what time it is, then lowered their wrist or put away their phone and noticed they still don't know what time it is.

If it is recognized that the driver is tired or distracted, the Harman team wants to dispense with annoying beeps; jerking seat belts, and the like; they want to improve the interface. Different actions will be possible to direct the driver's concentration back to the traffic situation. For example, by lowering the temperature or changing the music. All of this is to be highly personalizable.

According to Hariharakrishnan, the system behaves more tolerantly when the driver is traveling on a route they're familiar with, and it intervenes more quickly when there is increased danger - near schools or in unfamiliar cities, for example.

Android Updates for Infotainment, Navigation

INTERIOR NEWS

GOOGLE IMAGE

Several new updates for vehicles compatible with Android Auto have been launched by Google to enhance entertainment safety and navigation for drivers and passengers.

To foster productivity, Google has worked with their partners to bring Microsoft Teams; Webex, and Zoom to vehicles. The YouTube app is now also available for automakers to offer; Polestar; Volvo, and other makers have committed to bring it to vehicles via over-the-air updates.

Other changes include the introduction of GameSnacks, to cater for the almost 1,000,000 gamers per month on Google's platform. Additional updates include Google Assistant sharing smart suggestions to enable responses to messages - a feature which will come to compatible vehicles over the coming months.

With the Waze navigation app already available on Android Auto, Google will now roll out the map application on the Google Play Store for cars with Google Built-In (GBI). Google has also developed additional EV-specific features for Google Maps for cars with GBI, and is now releasing EV capabilities through Waze to enables users to look for EV charging stations that fit their specific EV plug near the driver’s location or along their route.

BMW i5 is New 5-Series Top Model

INTERIOR NEWS

BMW IMAGES

BMW has unveiled the new 5-Series sedan, which has grown to over 5 meters long and is offered as an EV; as a plug-in hybrid, or with electrified combustion engines.

In the vegan interior, sports seats are standard. Electric comfort seats are optional, as is Merino leather upholstery. In the cockpit, the number of buttons and switches has been further reduced. The Curved Display consists of a 12.3" information display and a 14.9" control display. The control panels on the steering wheel now offer haptic feedback, and the optional Interaction Bar on the dashboard includes touch-sensitive control panels. The iDrive display and control system offers quick access with QuickSelect. With the BMW Operating System 8.5, video streaming or in-car gaming (when the vehicle is stationary) can also be enjoyed. Two 5G mobile antennas are installed as standard. The optional Live Cockpit Professional includes a head-up display as well as an Augmented View function on the Control Display or instrument panel.

The sedan can also be opened with the BMW Digital Key Plus, by using a smartphone or the Apple Watch. In the future, anyone can also have photos and videos taken of themselves while driving by an interior camera.

The footage can be transferred to a smartphone via QR code. In addition to the exterior cameras, this camera is also activated when the anti-theft alarm system detects a break-in.

For driver assistance systems, the optional Driving Assistant Professional, including steering and lane control assistant and distance control with stop & go function, offers a highway assistant that takes over the steering task up to 130 km/h. And the car can also perform various parking functions itself, controlled via an app on the smartphone. This replaces the previous large key with integrated screen.

According to BMW, the driver's attention is monitored by a camera. This is also the prerequisite for the new automatic lane change assistant, which can be controlled by the driver's gaze: just by looking in the exterior mirror, the vehicle starts to change lanes and takes over the necessary steering movements and speed adjustments, provided the driver confirms this and the traffic situation allows it.

New HVAC System for Kia EV9 Electric SUV

INTERIOR NEWS

KIA IMAGE

The EV9 features three-row seating, and can accommodate up to seven passengers, with two independent climate control systems. This enables separate climate zones for the driver; the front passenger, and the rear passengers. As standard, the seats equipped in the front and the first row are all ventilated and heated, and feature new wiring to further enhance efficiency.

Kia Europe product marketing manager Gregor Krumboeck says “Having two independent HVAC systems doesn’t only increase comfort - it also reduces unnecessary power consumption. They can save energy by turning off the air conditioning for empty seats, or for passengers who don’t want it".

When testing the HVAC systems, Kia engineers tuned the control algorithm of the climate control to maximize cabin comfort and to optimize power consumption under extreme weather scenarios.

KAI IMAGE

The new cabin climate control can automatically control the inside temperature; intensity and direction of airflow, or the passengers can instead manually change these. Furthermore, new and improved vents located in the roof have been added to optimize air resistance and diffusion angle to heat or cool all passengers located in the second and third rows.

Kia also has updated the air conditioning system with a new after-blow system which reduces condensation build up on the evaporator to prevent bacteria from growing, thus staving off foul odors.

Innolux's Innovative Front, Rear Displays

INTERIOR NEWS

Innolux describes their Integrated Automotive LID as the world's first-ever single-piece large curved display, is a one-piece front-seat display that maximizes information display and ease of manœuverability. This is aided and abetted by the likes of display-wide touch functions; diversified in-vehicle applications, and a more intuitive design.

And the company's one- high-resolution Cinema Display for Rear Seat is entering mass production for international car makers. The company says its 8K ultrahigh-resolution design; optimized efficiency, and power-saving design will bring a "spectacular, theater-like visual feast, delivering a cozy, warm cruising experience" to passengers.

Innolux is a TFT- LCD total solution provider, manufacturing panels of all sizes. CarUX is an Innolux subsidiary, seeking innovation and breakthroughs in the high-end display technologies and technologies for large, curved, and free-shape displays. See video.

Bowers & Wilkins Immersive Sound in Volvo EX90 EV

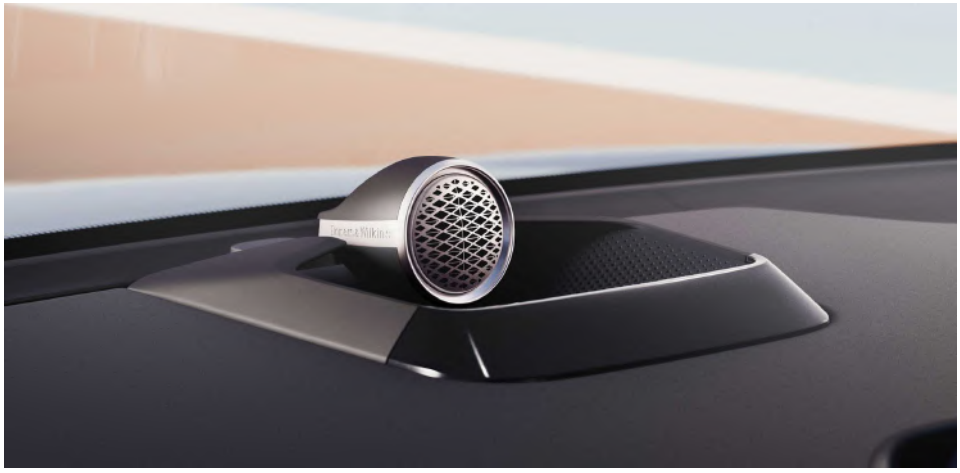
INTERIOR NEWS

EX90 BOWERS & WILKINS SPEAKER GRILLE (VOLVO IMAGE)

Volvo is offering an audio system in their electric EX90 that creates an immersive, high-resolution sonic experience. The Bowers & Wilkins High Fidelity sound system pairs perfectly with the quietest Volvo cabin ever built.

Even when the EX90 was nothing more than a sketch on paper, Volvo designers collaborated with the audio engineers at Bowers & Wilkins to ensure that no matter where you might be in this 7-seater, you will be able to enjoy ultra-realistic 3D surround sound from the 25 speakers throughout the cabin.

Jorge Furuya, head of UX at Volvo Cars, says, "For the new EX90, Bowers & Wilkins was a natural and obvious choice as the partner for our premium audio system. Its highly acclaimed approach to sound exudes quality and complements our design language seamlessly. This premium audio experience is what our customers have come to expect from us and we are happy to partner with some of the most respected names in audio to deliver it".



EX90 BOWERS & WILKINS TWEETER (VOLVO IMAGE)

With optimized speaker placement and studio-derived loudspeaker technology, music flowing through the 1,610-watt system is delivered precisely as the artist intended; a philosophy which Bowers & Wilkins calls 'True Sound'.

To make the most of the optimally-positioned speakers, listeners can also experience Dolby Atmos: when artists or creatives make a song or podcast in Dolby Atmos, they’re able to place individual sounds intentionally in 3D space to create a rich, detailed experience for listeners, to enjoy a more immersive sound experience with greater depth; detail, and clarity.

The audio system is enhanced further by surround sound listening modes which allows listeners to tailor the sound to suit personal tastes.

Studio mode replicates the neutrality and purity of sound in a recording studio, and can be optimized for passengers in any seat. The Individual Stage setting delivers the sensation of an artist performing just for you, and Concert Hall mode reproduces the acoustic ambiance of the concert hall in Volvo's home city of Gothenburg.

The carefully integrated placement of the speakers in the dashboard; doors; headlining; rear-wheel housing, and headrests of the front-row seats contributes to the minimalist, Scandinavian design of the interior.

Many of the speakers feature bespoke double-etched and brushed stainless steel grilles housed in backlit wood paneling.

Seeing Machines, Ambarella, Autobrains Mix DMS With ADAS on SoC

INTERIOR NEWS

Seeing Machines (see **DVN-I interview with CEO**) has announced a partnership with Ambarella, a human vision and edge-AI applications specialist company in Santa Clara, California, and Tel Aviv, Israel-based automotive AI expert company Autobrains. The partnership will deliver a streamlined solution for automotive manufacturers by combining front advanced driver assistance systems (ADAS) and driver monitoring systems (DMS) using a single system-on-chip (SoC) and multiple cameras. This scalable solution, bringing together three safety systems in a single box, provides a rapid path to meeting more demanding transport industry standards and driver safety regulations.

This open-platform solution combines Seeing Machines' embedded driver monitoring engine (e-DME) software stack with Autobrains' signature-based AI software stack on an efficient, performant Ambarella AI perception SoC. This joint solution provides the flexibility to add multiple subsystems and stacks on the single SoC, as well as sensors with different color filter arrays, and advanced features such as DVR functionality.

Ambarella's SoCs provide what the company says is the industry's highest AI performance per watt, as well as great image quality for operation in challenging lighting conditions. In combination with the highly efficient software from both Autobrains' proven self-learning AI and Seeing Machines, this integrated solution provides extremely low power consumption, which reduces thermal-management requirements and enables both the ADAS and DMS cameras to be packaged in a single box, lowering system cost and complexity. This low power and heat allow one-box, single-ECU solutions to be placed in high-temperature areas that are optimal for both cameras, such as the dashboard or near the rearview mirror.

The features of Seeing Machines' in-cabin DMS and OMS, and Autobrains' modular ADAS and AD software can scale from the baseline for current regulations and standards, to L^{2+} and L^{3} semi-autonomous vehicles, for fusion between driver state detection and self-driving system handoffs, through to the highest levels of autonomy. Additional capabilities such as Autobrians' advanced set of ADAS and AD functionalities - including edge-case coverage, hazard and freespace detection - along with digital video recording via the Ambarella SoCs' on-chip encoder, enable automakers to provide value-added features.

The Design Lounge

Hyundai Pony Coupé Concept Restored After 50 Years

THE DESIGN LOUNGE

Hyundai's recreated Pony Coupé Concept has made its world premiere, nearly 50 years after its original debut, in Lake Como, Italy. Originally unveiled at the 1974 Turin Motor Show, the Pony Coupé Concept is an important vehicle in the company's history and design heritage.

Hyundai unveiled the rebuilt Pony Coupé Concept at the inaugural Hyundai Reunion, a heritage brand platform that reflects on Hyundai Motor's past and their future direction. Among the representatives present at the event were Giorgetto Giugiaro and his son Fabrizio - himself a longtime designer. The restoration was completed by GFG Style, the style center that draws on the creative expertise of Fabrizio and Giorgetto. This car led to the creation of Hyundai's seminal Pony model range, Korea's first independently-developed mass-production line of automobiles.

Euisun Chung, Executive Chair of Hyundai Motor Group, said "Despite the poor industrial environment in the 1970s, my grandfather and Hyundai's Founding Chairman Ju-young Chung poured his heart and soul into rebuilding Korea's economy and improving the lives of its people after the devastating Korean War. He finally realized his vision of making Korea a country capable of developing its own vehicles with perfection".

The Pony Coupé Concept was a groundbreaking model in its time, but not a commercial success. Nevertheless, it was Hyundai's first step into the sports car sector. The car is now considered a retro-futuristic classic that has served as design inspiration for more recent Hyundai models, such as the N Vision 74

hydrogen-hybrid electric ‘Rolling Lab’ development vehicle, and the ‘45’ EV concept car that directly influenced the Ioniq 5 EV.

The Pony Coupé Concept’s origami-like exterior features tidy geometric lines, a sleek roofline, pure unadorned surfaces, dynamic proportions, and a basket-handle B pillar. Its wedge-shaped snout distinguished it in 1974, and still looks stylish today. Its *coda tronca* (‘cut-off tail’) has a slim hatch to provide access to the back of the car.

The minimalist interior showcases an iconic sensibility highlighting the monocoque design and driver-centered floating architecture. A single-spoke steering wheel and two-toned slim bucket seats reinforce what was in the 1970s a futuristic aesthetic.

Luc Donckerwolke, President and Chief Creative Officer of Hyundai Motor Group, said, "The restoration of this unique vehicle is a milestone in Hyundai’s history. It represents our beginnings and our commitment to the future. It serves as a legacy for generations to come. It virtually symbolizes the mobile relay baton we are passing from the past to the future of the company". As part of the global heritage project, Hyundai Motor will expand their new brand platform, Hyundai Reunion, to further spread its brand vision and direction.

DeLorean, Giugiaro, and Hyundai

THE DESIGN LOUNGE

DVN-I Coffee Corner

By Athanassios Tubidis

The sale of 1.5 million Hyundai cars was outperformed by ‘Jurassic Park’ box office in 1994. It is the very moment when the Korean government under Kim Young-sam's administration, officially recognized the gigantic financial prospect and export value provided by the creative trades in advancing Korea's cultural diplomacy.

Hyundai N Vision looks like DeLorean DMC12 and by now a great number of automotive articles, including this one, start with the above phrase. The strange conundrum occurred much earlier though, at the very moment the Korean OEM is about to relaunch its image based on an archetype design of the 70s. This is the Hyundai Pony coupe officially presented back in 1974 at Torino motroshow.

In September 2022, V&A London, inaugurated an extraordinary exhibition dedicated to South Korea, exploring the makings of the Korean Wave and its global impact on the creative industries. A phenomenon that rose to prominence in the late 1990s, rippling across Asia before reaching all corners of the world to finally challenge the currents of today’s global pop culture. The historical context and its meteoric rise is depicted, highlighting how, within living memory, South Korea rapidly evolved from a country ravaged by war in the late 1950s to a leading cultural powerhouse by the early 2000s. On the display, numerous archive materials, alongside objects ranging from Olympics posters to early examples of electronics – including the world's first commercial MP3 player. Among those, a scale model of the original Hyundai Pony coupé!

With today’s lens, is remarkable the importance that was given back then on the sources of inspiration that contributed at the rebirth of the nation. Oppressed, repressed and finally creatively expressed the Korean attitude towards its future went through the acknowledgement of the huge economic potential and export value provided by the cultural industries. Design is one of them and Italy back then, the design place to be.

Indeed, Giorgetto Giugiaro was commissioned to create a production vehicle for a country that was about to face a very competitive market. As he says, he was inspired by the Pony Coupé later to design the DeLorean DMC 12. The main design characteristic is expressed by lines drawn in a single pencil stroke, and that was the '70s. Today if we compare the two cars there is something in common that goes beyond just the design theme. In the case of DeLorean it becomes obvious since the car is presented without paint, just brushed metal, making the-material part of its design expression. Folding metal along single-stroke designed lines - a physical property of all metals - became its design identity that half a century later, today, we indeed find very appealing: a perceived feasibility that relates to simple lines.

In today’s design polyphony, materials, aesthetics, and physical properties are evermore dissociated through the use of performing AI platforms. If Hyundai's N Vision looks like DeLorean's DMC12, driving timeless design qualities, alluding into direct, sincere, and analog comparison to proportions, then it is easy to read, understand and appreciate the design message: **back to the future**!

News Mobility

Continental Mine Imagry for Mapless AD

NEWS MOBILITY

HUAWAI IMAGE

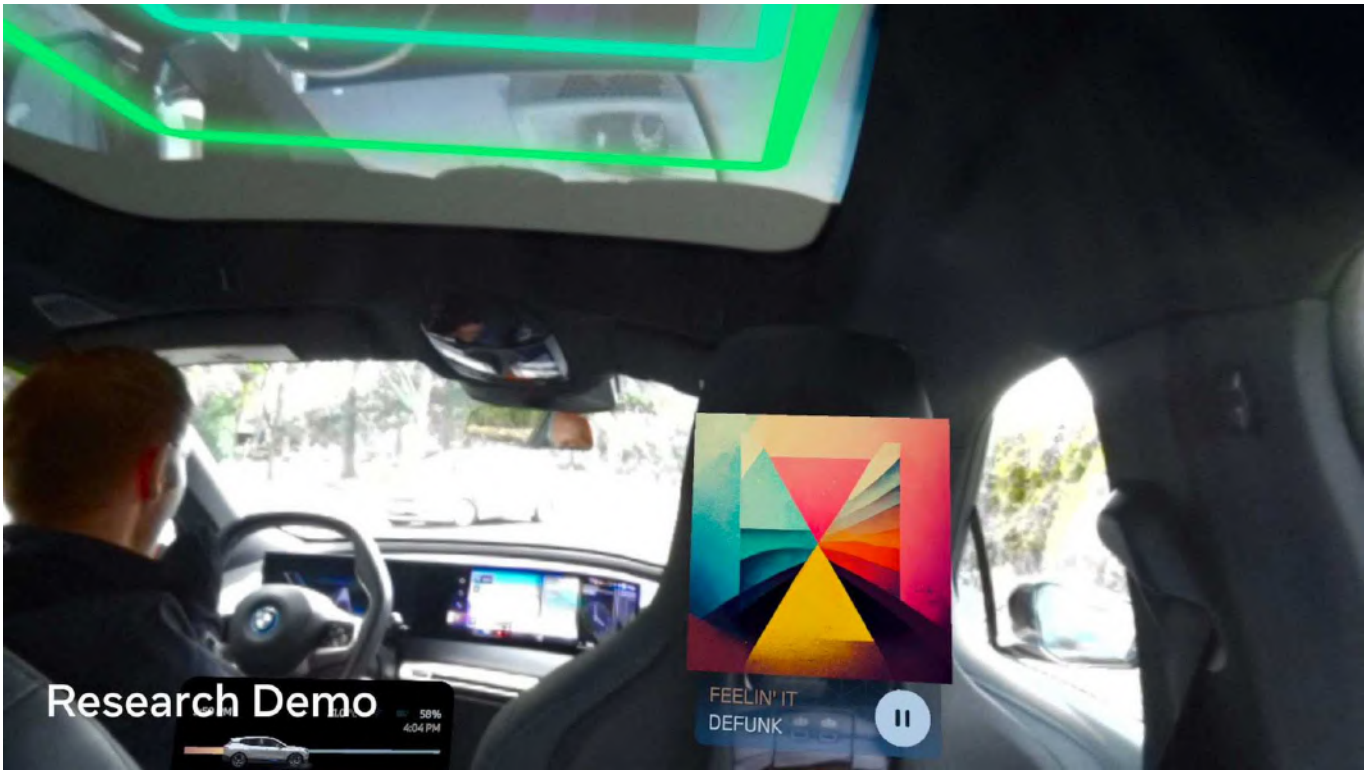
Imagry, founded in Israel in 2015 for high-end computer vision applications and specializing in the automotive sector since 2018, is a software provider for autonomous driving. They've developed a mapless autonomous driving system that combines a real-time vision-based perception network and mimicking artificial intelligence (AI).

Continental wants to use Imagry technology for mapless autonomous driving functions, first of which will be autonomous parking. Continental is working with Copernicus on a technology for automated parking and autonomous maneuvering of vehicles. Imagry's software now complements Continental's platform for assistance systems. "The capabilities of our system can be easily extended to the open road," says Imagry CEO Eran Ofir.

Imagry says their software can capture and recognize video images in real time using a deep neural network, then the data is used to make complex driving decisions based on current driving conditions. The technology does not require map data, so it is not limited to previously-learned geographic areas. The software has been tested in Germany; Israel and the U.S. over the past three years.

BMW + Meta for Stable AR and VR

NEWS MOBILITY



BMW IMAGE

In a collaborative research project, the BMW Group Technology Office in Mountain View, California, and Meta's Reality Labs Research have been evaluating ways in which augmented reality (AR) and virtual reality (VR) can be integrated into vehicle cabins.

The companies have demonstrated that it is possible to accurately display stable VR and MR content to passengers in a fast-moving car - even when travelling at speed; making turns, or going over speed bumps. This was achieved by integrating Meta Quest's tracking system with BMW's sensor data to deliver 'car-locked' gaming; entertainment; productivity, and meditation functions for passengers.

The tracking system of the proof-of-concept prototype can simultaneously calculate the position of the device relative to the vehicle and the position of the moving vehicle relative to the world. Virtual objects can thus be anchored precisely.

In the long term, BMW and Meta Reality Labs plan to develop new extended reality (XR) experiences for future vehicles. By combining vehicle-generated motion data with the XR headset's sensor capabilities, "vehicle motion can essentially be subtracted and the movement of the headset in a vehicle can be tracked more accurately," says Claus Dorrer, who heads the Mountain View BMW office. "This enables the display of content that is synchronized with the movement of the vehicle in real time".

Dorrer says, however, there are still challenges to resolve: "It is still difficult to predict when and how this technology will become available to end customers. The potential of future AR glasses and VR devices is promising. The research partnership with Meta allows us to find out what immersive XR experiences in vehicles might look like in the future".

Waymo, Uber in Driverless Ride, and Delivery Pact

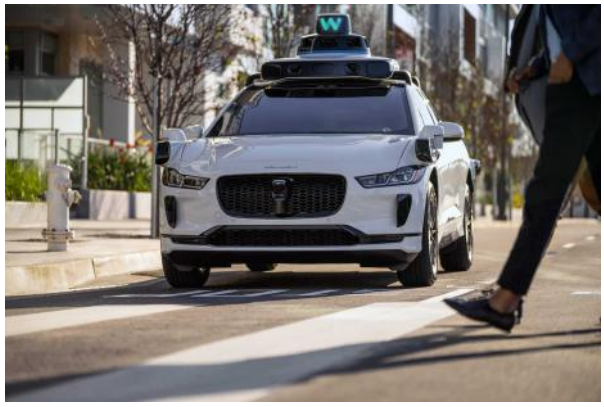
NEWS MOBILITY

Uber has signed a multi-year strategic partnership with Waymo (the Google self-driving car project), offering driverless rides and deliveries to customers. The new partnership could bring scale to Waymo's driverless tech, while offering a pool of potential customers.

Both Waymo and Uber were founded in 2009 and have taken very different trajectories in the mobility space, each using advanced technology to revolutionize how we get around in our daily lives.

Earlier this year, Waymo hit 1 million test drive miles as they work to transition into an entirely electric fleet of robotaxis. Meanwhile, Uber has dabbled in a little bit of everything, whether it's helping design a rideshare specific EV, deploy mini autonomous food delivery vehicles, or get electric freight trucks onto highways.

In California, Uber has been working with Waymo rival Motional, to deploy driverless deliveries for Uber Eats, which has expanded into a long-term partnership to offer robotaxi rides as well.



WAYMO JAGUAR I-PACE (WAYMO IMAGE)

Waymo shared details of their new strategic partnership with Uber in a press release. The initial driverless rollout will begin on the Uber platform in Phoenix, Arizona where the robotaxi company currently operates across 180 square miles - the largest fully autonomous service area in the world, according to Waymo. Co-CEO Tekedra Mawakana says, "We're excited to offer another way for people to experience the enjoyable and life-saving benefits of full autonomy. Uber has long been a leader in human-operated ridesharing, and the pairing of our pioneering technology and all-electric fleet with their customer network provides Waymo with an opportunity to reach even more people".

Waymo says their driverless services will be available to Uber users later this year and will include the ability to schedule both ride-hailing trips and local deliveries (meals, groceries, etc.). In addition to the Uber and Uber Eats apps, Phoenix riders will still be able to hail a robotaxi directly through the Waymo One app. Uber CEO Dara Khosrowshahi said, "Uber provides access to a global and reliable marketplace across mobility, delivery, and freight. Fully autonomous driving is quickly becoming part of everyday life, and we're excited to bring Waymo's incredible technology to the Uber platform".

General News

Renault, Valeo to Co-Develop Software-Defined Vehicles

GENERAL NEWS

RENAULT CTO LEBORGNE (L), VALEO CEO PÉRILLAT

Renault and Valeo will expand their collaboration to software-defined vehicles (SDV). The two companies intend to jointly develop the electrical and electronic architecture of the next generations of Renault Group vehicles.

Valeo will supply Renault with electrical and electronic components, notably a high performance computer, as well as on-board application software such as parking assistance. Renault say Valeo engineers will work closely with the Renault Software Factory teams on software development near the carmaker's sites in Guyancourt; Toulouse, and Sophia-Antipolis.

The SDV concept reduces the number of computers to switch to a centralised electronic architecture, making it possible to update vehicles remotely and integrate new functionalities without hardware modification.

The announcement of expanded collaboration was made at the gala organised by Valeo for the company's 100th birthday, at the Atelier des Lumieres.

Jens Kaatze is Mocom, Wipag CEO

GENERAL NEWS

JENS KAATZE, CEO MOCOM AND WIPAG, MOCOM IMAGE

Jens Kaatze, the CEO of Wipag, has now also taken over management of Mocom Compounds. Both companies are part of the international, family-owned Otto Krahn Group, based in Hamburg, Germany. The group comprises plastics distributor Albis; plastics compounder mocom; the Krahn Chemie Group, and the recycling specialist Wipag. In the 2022 financial year, the Otto Krahn Group employed a total of around 1,800 people at 39 locations worldwide and its global turnover was €1.7bn.

Kaatze has been with the Otto Krahn Group since October 2021, and CEO of Wipag since December of that year. Previously, he spent many years working at the Bayer Group and later Covestro in Europe, the USA and Asia, so he has in-depth expertise in the industry.

“Jens Kaatze will be an excellent CEO of Mocom and Wipag, and is well placed to take both companies into the future,” says Philip O. Krahn, CEO of the Otto Krahn Group. “The fact that we were able to recruit for this role internally is a mark of our strong corporate identity and management capacity.”

Ian Mills, the previous Mocom CEO, handed over operational responsibility for the company to Kaatze as part of a planned leadership transition at the end of April. He will remain associated with the group of companies until the end of the year. “We are delighted that Ian Mills will continue to provide his support,” says Krahn. “Over 17 years of working for our group of companies in various positions, he has made a significant contribution towards our success. We’re hugely grateful to him for that.”

“I’m looking forward to managing and advancing with Mocom, one of the world’s leading compounders of thermoplastics, alongside recycling specialist Wipag,” says Kaatze. “The portfolios of the two companies complement each other perfectly, especially when it comes to the increasingly important issue of offering sustainable solutions.” Dirk Sadowski, former CFO of Mocom, will also assume the role of CFO of Wipag. “By appointing internal management teams to serve parallel roles at Mocom and Wipag, we are looking to combine the core competencies of both companies and leverage growth in the plastics market,” says Krahn. “In particular, we will benefit from the increasing importance of special thermoplastics and sustainable recyclates, as well as the trend towards locally produced materials".

Akkodis: Development Partner for the BMW i Vision Dee

GENERAL NEWS

BMW IMAGE

From the implementation of initial sketches to the drivable show car, Akkodis was involved in the design and construction of the BMW i Vision Dee. According to the statement, the engineering service provider developed the specific battery and the wiring harness. Furthermore, the developers realized the on-board network with their so-called Gigabox, a "hub between several vehicle bus systems and mobile end devices," the company describes it.

The name "Dee" stands for "Digital Emotional Experience." BMW says they aim to "strengthen the connection and interaction between people and vehicles." The show car has a number of features, including a mixed reality slider and an enhanced version of the head-up display. The Mixed Reality Slider describes sensor technology on the dashboard that drivers can use to determine the level of digital content on the enhanced head-up display themselves.

The five-stage selection ranges from analog, driving-relevant information, communication system content and an augmented reality projection to entry into virtual worlds. In parallel, reality can be gradually faded out by means of dimmable windows.

In addition, the BMW i Vision Dee can change its exterior color in the color spectrum of the rainbow using e-ink technology and is said to create an immersive driving experience using avatars, light, sound and a natural human voice.

"The BMW Group Vision Car is a great example of how digitization can be used by an automaker to transform the future of mobility," said Jan Gupta, president of Akkodis.