

DVN REPORT

September 2024

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New Models
September 2024
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He joined Renault in 2000 and the lighting department in 2004.

Lighting Project Manager on Mégane 2 and 3 from 2004 to 2009, Head of Pre-Development and Innovation from 2009 to 2012, Manager of the Lighting and seating department in Bucharest for the Dacia range from 2012 to 2015, then Expert lighting of Renault since August 2015.

He joined Volvo in 2018 as an expert on lighting, and In August 2023, he joined DVN and since August 2024 he is the CEO of DVN.

About Driving Vision News

DVN is the vehicle lighting; ADAS; lidar, and interior world's journal of record, dedicated to keeping the community informed and communicating about the latest progress and developments. DVN's three pillars are:

- **Technological watch** on new emerging technologies, with weekly electronic newsletters bringing news, analysis, and crucial information on innovation in lighting, ADAS, lidar, and car interiors; there are also monthly technical reports with sharp focus on cutting edge technologies, company profiles, regulatory matters, and other relevant content available only from DVN
- **Networking** of high-level decisionmakers, researchers, innovators, practitioners, academics, and regulators to make new business connections with two workshops per year in rotating locations throughout America; Europe; China; Japan; India, and Korea. DVN Workshops are very popular, and routinely fill to capacity with over 300 participants.
- **Promotion of innovations** from DVN's 240 member companies—we facilitate the promulgation of knowledge of innovation, which in turn paves the way for commercialisation, enabling to build new relationships through DVN Community to forge new business worldwide. The DVN Gold membership roster includes 240 companies including automakers; lighting, interior, lidar and ADAS tier-1 and -2 suppliers, and a wide variety of universities; research outfits, and consultants. DVN Gold members receive all publications and attendance privileges at all DVN Workshops.

DVN's Takeaways From Recent Auto Launches

1.

Ultra Slim Headlights



Audi A6 E-tron



DS SM Tribute Concept



Ferrari 12 Cilindri

2.

3D Tail light



Cadillac Opulent Velocity Concept



Bugatti Tourbillon



Aston Martin Vanquish

3.

Digital look



Fiat Grande Panda



Ford Capri



Audi RS3

4.

Jewel like refinement



Bentley Continental GT



Cupra Terramar



Aston Martin Vanquish

Acura Performance EV Concept

Acura shows great and flashy progress in their electrification strategy with the debut of the Acura Performance EV Concept. The front lamps—they look like mockups, on this concept car—show the familiar, familial brand-identity signature shape, refined and slimmed for this new model.





Alfa Romeo Junior

The latest Alfa Romeo model is a sporty compact SUV.

The front lamps bear a trio of subtly L-shaped bars at the top, the outermost above the matrix headlamp projector with another bar below.



At the back, a glossy black panel is integrated as a wing and presents a light signature echoing the front triple bars, but with a more prominently hooked hockey-stick shape to the lit elements.



Alpine A290

Alpine's A290 electric sports car presents a distinctive character in the tradition of Jean Rédélé's creations, and the lighting system plays a central role.

There are four headlamps, as on all Alpine models. On the A290, they feature X-shaped motifs reminiscent of rally cars, and they display a welcome animation when the hands-free card is detected as the owner approaches.



The shape of the rear lights strongly harks back to classic Renault designs, but now with a sporty, high-tech appearance featuring red combs of light..



Aston Martin Vanquish

Matrix LED headlamps with integral DRLs present the brand's new light signature. There are intricate details throughout the lamps, including 3D light elements looking as though chisel-sculpted, and an Aston Martin callout etched on the headlamp internals.



The rear panel is flanked by stacked light blades. First seen on Valkyrie, this intricate lighting layout of seven blades is modern and elegant in its design, and ensures the Vanquish is as instantly recognisable in the dark as it is in the daylight.



Aston Martin Vantage

The distinctive front treatment features new matrix LED headlamps with emphatic three-cube integral DRLs, presenting Aston Martin's new light signature.

The rear lighting is an exercise in powerfully understated curvilinear lit elements.





Audi A5

With the new A5, Audi is accentuating its leading role in lighting design and technology. The front and rear lights have a three-dimensional design and offer optional selectable digital light signatures to customize the appearance of the digital DRLs and second-generation digital OLED rear lights.

With around 60 segments per digital OLED panel, the taillights can serve as a display, to enable V2X communication. A domain computer controls the communication light and the active digital light signature.



In addition to the regular taillight graphics, the communication light in the digital OLED rear light displays a specific static tail light signature with integrated warning symbols in critical driving or traffic situations.





Audi A6 E-tron

As in the A5, three-dimensional front and rear lights can offer digital light signatures with optional digital LED DRLs and second-generation digital OLED rear lights.



The A6 digital OLED taillights have around 45 segments each, for V2X communication. Ten OLED panels with 450 segments use a specially developed algorithm to generate a new image several times per second. The active digital light signature also points the way to the future of Audi lighting technology. A software module in one of the five domain computers of the Audi A6 e-tron makes this light signature possible.





Audi RS3

The Audi RS3 now has a significantly sportier appearance. The dominant feature of the assertive front design is the redesigned daytime running lights, and the headlights also accentuate the car's performance. The digital signature, which displays a checkered flag, comprises 24 elements. In combination with the matrix LED headlights, drivers can choose between three additional DRL designs in the MMI touch display.



Like the headlights, the tail lights also feature a new graphic: arrows that dynamically light up from inside to out with the coming home/leaving home function.





Audi Q5

The third generation Q5 SUV is sportier. The headlights give a sleek look thanks to ultra slim DRLs, with road-lighting equipment tucked underneath.



The rear lights have a three-dimensional design and a tidy, slim, full-width light strip spanning the entire width of the vehicle.

With the second-generation digital OLED combination rear lights, six digital OLED panels with a total of 266 segments generate a new image several times per second using a specially developed algorithm.





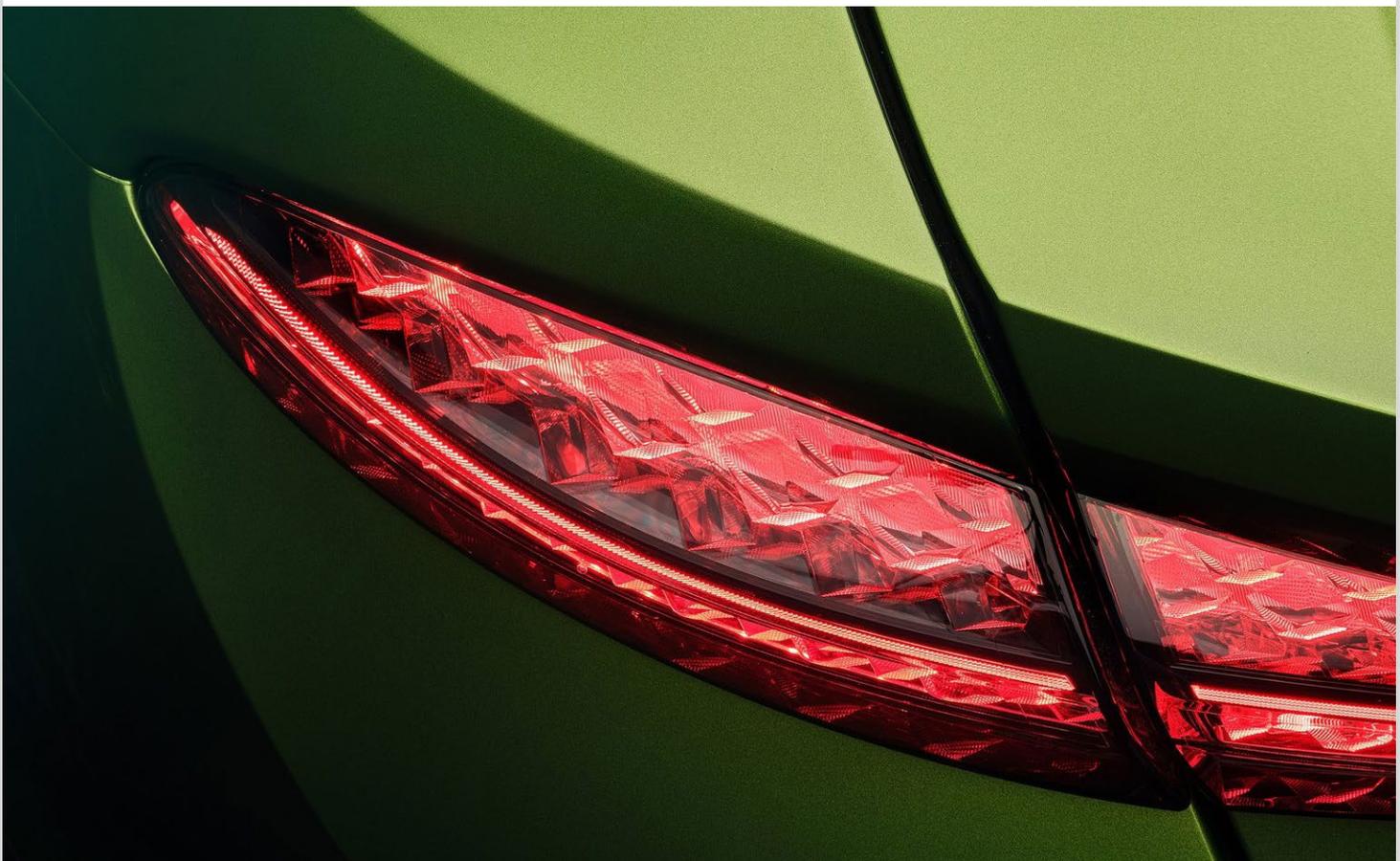
Bentley Continental GT

Bentley's fourth-generation Continental GT Speed has headlamps featuring a new horizontal eye-lid-looking element, a deep-cut crystal effect at the top of the lamps, and an illuminated lower pattern.

The matrix LED lamps contain 120 LEDs digitally controlled with differing responsibilities for low beam foreground to high beam power boost. This increases the capability of the lamp with a wider high beam field and improved fade out, which gives a more gradual transition. This makes reading the road more natural and gives a more relaxing driving experience by avoiding the perception of «black holes» in the field of vision.



The taillights have a dramatic new appearance with a much wider graphic stretching into the deck lid. The lamps protrude gracefully, and they feature a deep three-dimensional diamond pattern. When illuminated, the tips of the diamonds are accentuated, creating a molten-lava-like visual effect. from lit to unlit areas.





BMW M5

The front of the new M5 is shaped by a modern take on the signature BMW twin headlights and illuminated kidney grille. Adaptive LED headlamps are standard equipment; they bring a modern, pared-back look to the brand-typical four-eyed face. They include the cornering light function and matrix high beam with BMW's 'Selective Beam non-dazzling high-beam assistant'.



The rear lights are relatively conventional, but with a trim, elegant theme of two horizontal lines.





BMW X3

This newest X3 departs from BMW's long-typical four-eyed appearance, while still retaining enough of a tie to longrunning BMW design themes to be unmistakably made by that brand.

There are still four prominent lit elements up front, but now they're L-shaped, overlapping ones serving as the daytime driving lights and side lights as well as the turn signal indicators. Low and high beam are emitted from a shared LED element. The technically sophisticated look of the new headlamps is also clearly apparent when looking at them from the side. Optional adaptive LED headlamps have matrix high beam, urban light, and cornering light functions, plus blue design detailing.



The LED rear lights offer a flashy new take on the characteristic layout for BMW X models; they have light sources arranged in a T-shaped graphic, a satinated horizontal bar with integral turn signals, and 3D-sculpted lenses.



Bugatti Tourbillon

The Tourbillon's headlamps are so slim as to be almost barely-there. Nevertheless, there they are, with four groups of optics each enclosed in a strong L-shaped tray, giving a striking front look.



At the back, a brash, bold identity is unmistakable thanks to a large, full-width light with the shape of a wing and state of the art details; it includes a strongly 3D red-lit Bugatti callout.





BYD Seal 06 GT

BYD's new electric hatchback is the production version of their Ocean M Concept shown at the Beijing Motor Show last April, and covered in our Beijing Motor Show Report. The headlights on the Seal 06 GT each contain two modules, with ultra slim curvilinear DRL following the lower edge of the lamp's lens.



At the rear, a full width stripe and doubled signature gives an aggressive look.





Cadillac Escalade

The 2025 Escalade incorporates advanced lighting technology. Functional lighting elements move from a horizontal to vertical arrangement, reinforcing the strong Cadillac vertical-light-lines brand identity, night and day.





Cadillac Escalade

On the Opulent Velocity, Cadillac's vertical lighting signature is expressed in crystal fluted detailing in the tail lamps, headlamps, and grille. The illuminated badge features a 3D lit grille.



At the rear there's a black panel with infinite-mirror-tunnel 3D lighting, giving a depth sensation and striking signature.



Cupra Terramar

The Cupra Terramar is a sporty SUV bearing the brand's triple-triangle signature. The headlamps are high-definition matrix LED items, giving the driver state-of-the-art seeing and advertising the car's high-end technology to all who see it.



The taillights echo the triangles theme with sculptural detail, and an elegant red-lit logo is ensconced in a central vee of the full-width light stripe.



Dacia Duster

The new Dacia identity is evident in the glossy black bands at the front and rear, with matte detail stripes at the rear. The strips are framed by the brand's iconic Y-shaped light signature, which is particularly striking with the LED daytime running lights at the front and the tail lights at the rear.





Ford Mustang

The original Citroën SM was sold from 1970-'75, and showcased the highest French automotive technology. Now it is back, in the form of a concept car.

The old SM did not have an obvious upper grille, which was replaced by a very large glass section in front of the steerable triple headlamps and the front registration plate. Fifty years on, this glass section becomes a 3D screen that lights up to its middle, framed by a light signature made up of three modules on each side, with eight diamond-tipped vertical DRLs based on a triad shape meeting at a point like a ship's bow.



The rear quarter panel is cut in half and goes on to make the rear part float with an ultra slim rear light, used for typical rear signals but also with a side dotted-line effect.





Ferrari 12 Cilindri

The Ferrari 12Cilindri is inspired by the legendary grand tourers of the 1950s and '60s. The front has thus lost certain signature elements, such as the elongated form of the headlights and the traditional grille shape, in favour of geometries and intersections innate to the car's design. The headlights are integrated into a single wraparound band from which the DRLs emerge like blades—there is no full-width light band, nor a lit logo.



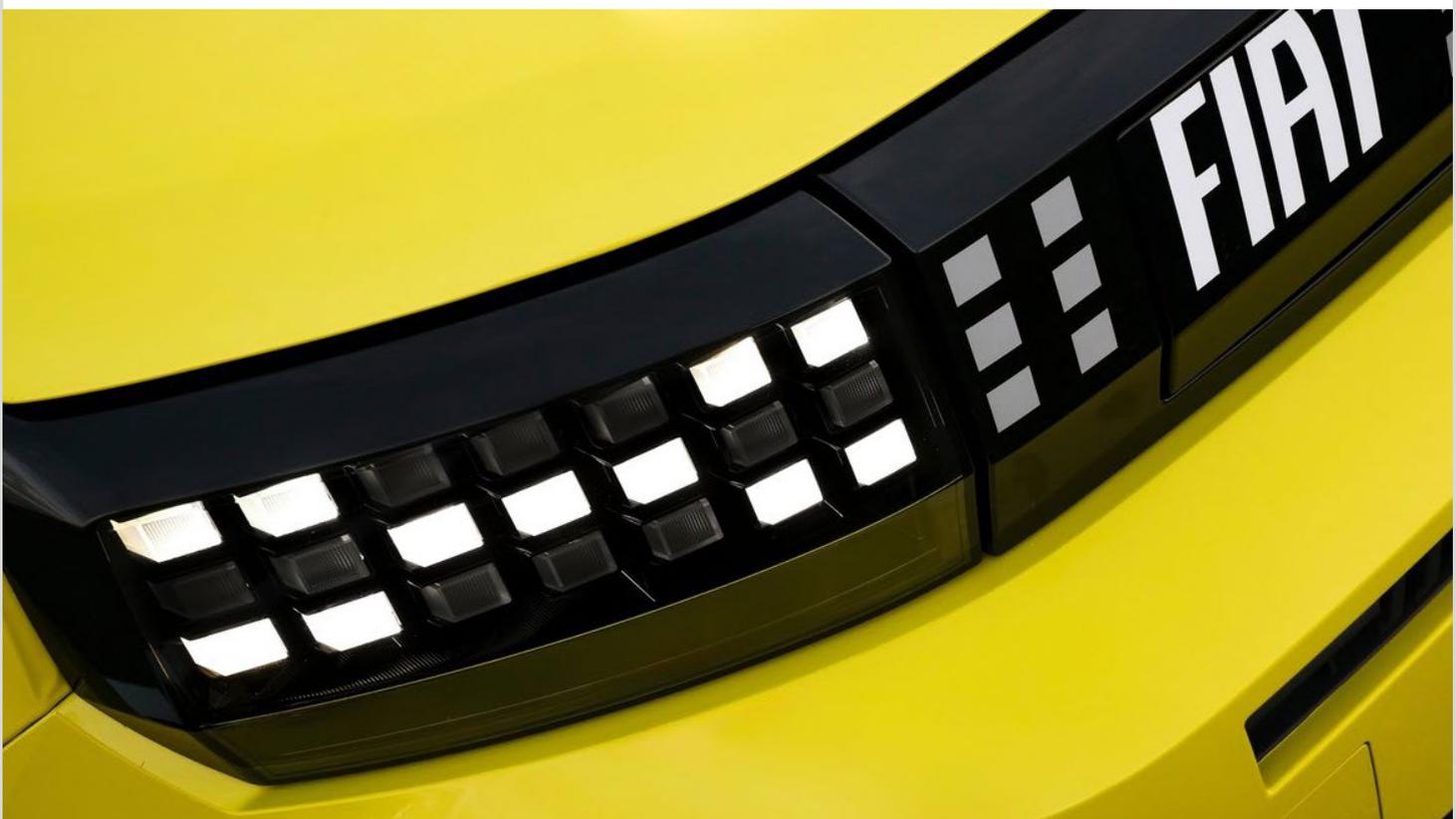
Consistent with the front of the car, the double-dash taillights are set into a blade that traverses the entire, concave rear section and also provides what is possibly the Ferrari 12Cilindri's real signature theme.





Fiat Grande Panda

The Grande Panda marks Fiat's return to the global mainstream market. The prominently matrixoid front lighting arrangement gives a modern, funky, robotic look to the car with its digital pixel style modules.



The rear lights are extruded from the body, helping to improve the aerodynamics and also following the front signature.





Ford Capri

Ford's electric Capri has a prominent four-headlamp look, with intricate comblike details drawing attention to the dynamic matrix LED and ADB technology, connected by a slim black panel where the grille would be on a combustion-engine car.



There's a similar black panel connecting the left and right tail lights, which echo the four-lamp theme stated up front.



Genome Xingyuan

Geely's entry-level Geome EV brand, formerly known as Geometry, unveiled its rival to the inexpensive BYD Dolphin. The front and back lights are simple, tidy tounded-triangle shapes containing all functions. The DRLs have a swoopy dashed-line shape.



The rear lights are nicely embossed from the tailgate surfaces and give a strong X-shape signature to emphasize the width and proportions of the car.



Honda Ye

Honda's China-market EV lineup is being expanded with the new Ye models.

The S7 has twin projectors prominently stacked at the left and right; they are not blacked out or otherwise hidden. They're framed by strong wall-and-ceiling white light lines, connected by a central horizontal line underneath a white-lit logo at the centre.

The taillights look almost Cadillac-like with their 3D vertical outboard elements tied together by a red full-width light band.





Lamborghini Temerario

Brave, unexpected and authentically a Lamborghini: with the Temerario Lamborghini Centro Stile has created a new and inimitable super sports car that opens a fresh chapter in Lamborghini design DNA. The hexagonal daytime running lights, which incorporate an air tunnel, are part of the design philosophy of incorporating lights within the aerodynamic concept. Furthermore, air channels positioned below the headlights improve the aero performance and cooling of the front high-performance braking system for better efficiency.



The hexagon-ring theme is repeated at the rear in the tail lights.



McLaren W1

The new McLaren W1 is the ground-breaking successor to two of the greatest supercars ever - the McLaren F1 and McLaren P1.

The headlights are giving a striking look to the new W1 with air intakes for aerodynamics around it.



Long tail wing in integrated in between to tail-light, which are integrated in the aerodynamic area.



Neta S

Super-slim linear DRLs follow the hoodline, with main lighting functions hidden in the bumper fascia.

The taillights have an interesting boomerang look as viewed side-on; from the rear there's more of horizontal theme, including a full-width stripe.



Nissan Patrol

The new Patrol (Armada in North America) has double C-shaped headlights with ADB. The double-C theme is present in the rear lights, too, and there's a strong red band across the hatchage—interrupted only by the central Nissan logo.







Peugeot E-5008

The E-5008 SUV comes with Peugeot's new Pixel LED technology (ADB) as standard equipment. The main lighting functions are in the upper part, where the three horizontally-arrayed claws are accentuated by matching light strakes well integrated in the bumper.



At the rear, the brand's 3-claw signature has evolved greatly since the first release a few years ago; now the three stripes are well detailed and give a 3D look.

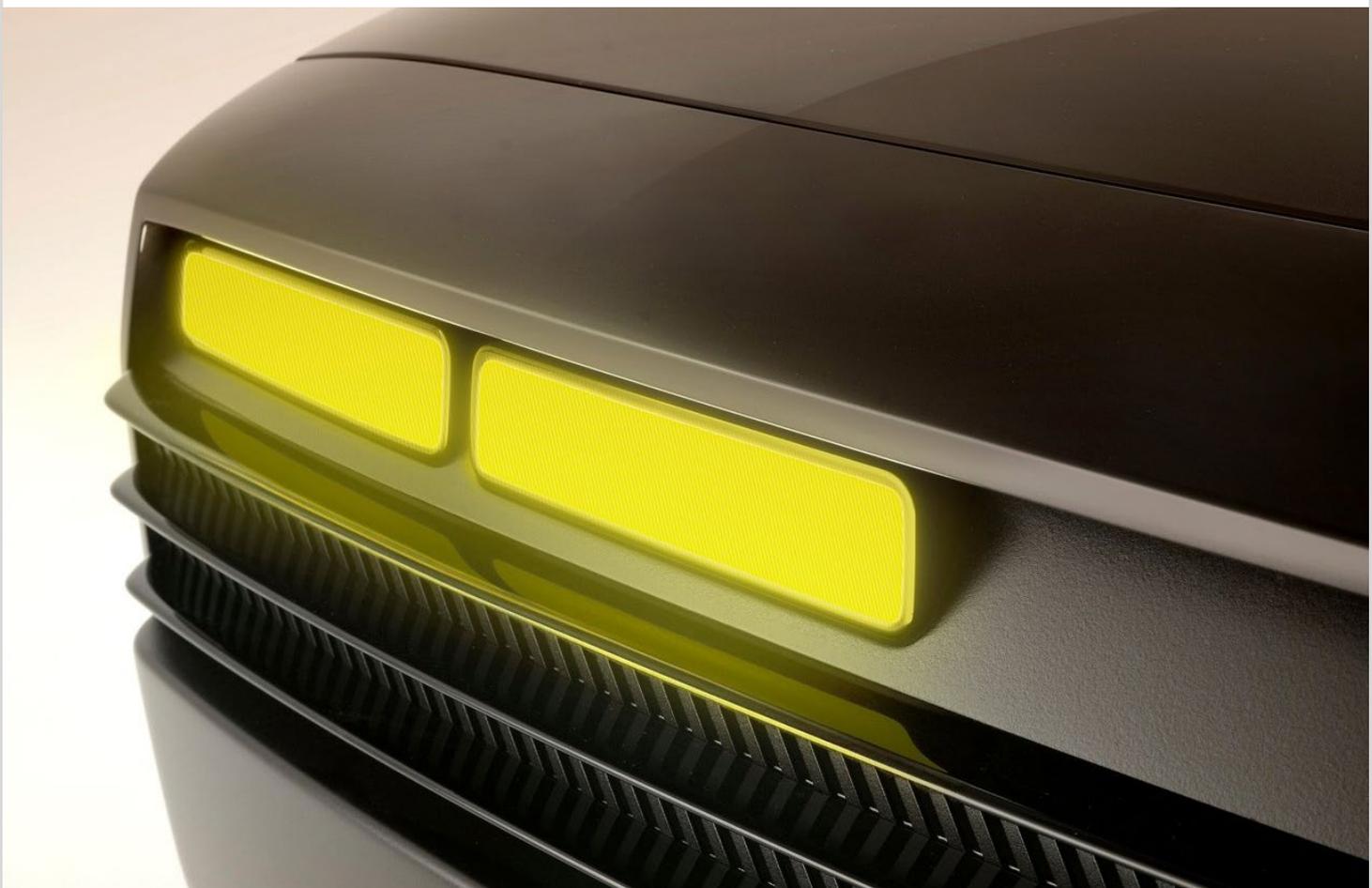




Renault Twingo

Renault R17 electric restomod by Ora Īto is a one-off show car, not the forerunner for a future production vehicle.

The four rectangular lamps, lighting up in yellow, are a nod to the past R17 and its French heritage (France required all cars to have yellow headlamps from 1937 until 1993).



At the back is a modern full-width red light strip, with remarkably homogeneous lit effect.





Renault Symbioz

The reflector LED headlamps express Renault's sophisticated new design language with the sliced-boomerang DRL.



The rear end is trim and elegant. Renault's Design Project Director Paula Fabregat says, «Inside each light, you can see illuminated geometric shapes, resembling ice cubes floating in a liquid».



Smart 5

The new Smart 5 has an oblongs-of-light theme up front, with two large ones at the left and right visually tied together with four small ones in a row just ahead of the frunkline—also accentuated by an ultraslim white light stripe. That same theme defines the rear lighting, with red rather than white light.



Oblong headlights are giving an unique look to the Smart with a full width ultra slim light stripe and two main function modules above each other.





Volvo XC90

The XC90 faces the world with a fresh iteration of the brand's Thor's Hammer design; the DRL is an outline, with the road lighting functionals placed above and underneath.



The rear lights tell the world this might be a new version, but it is still an XC90.



Xpeng Mona M03

The M03 is the first model under Xpeng's Mona brand. The headlamps present a technology-under-glass look, with road-lighting elements arranged above and below a horizontal white-line DRL, all within a T-shaped housing.



The rear lights also feature T-shaped housings, echoing the front lights' design themes.



Zeekr 007

The front of the 7X is interesting, with the main lighting functions in the lower area, freeing up the upper part to be fully lit with a pixeloid pattern. Multiple white lines traverse the front of the car, and there's a lit logo in the centre.

At the back, a thin red stripe is well executed, paused only in the middle.



DVN ecosystem and scientific community

DVN is a reference in the world of Lighting, Interior comfort and Lidar

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Bentley
BMW
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General Motors
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Mazda
Mercedes-Benz
Mitsubishi Motors
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Mercedes-Benz profile
LED technologies in automotive lighting
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Evolution of LEDs
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Reports launched in 2022

Technologies presented in CES 2022 Laser
light automotive lighting
ISAL report
DVN US workshop
Worldwide Demographic Development
Models launched May to August
DVN Shanghai report
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Reports launched in 2023

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