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Weekly Newsletter

DVN
Lighting & ADAS

NEWSLETTER #816

Editorial

DVN Welcomes Paul-Henri Matha To The Team

Everyone on the DVN team is happy and proud to welcome Paul-Heni Matha onboard! DVN President Jean-Claude Lebrun says "Paul-Henri Matha has acquired great knowledge working with Renault, then Volvo, and with leading positions in the GTB. We are excited to work with such an experienced colleague in lighting and regulations. I welcome him to DVN with great pleasure".

A decade and half from its start, DVN has become a great tech watch company with a dynamic and growing staff on three continents working in three activity areas: lighting; interior, and lidar. Each year, DVN brings you:
• in lighting: four Workshops; 10 Reports; 52 Newsletters, and one Study;
• in interior: one Workshop; three Deep Dives; one Report, and 52 Newsletters;
• in lidar: one Conference; three Deep Dives; 12 Newsletters, and four White Papers.

These achievements are possible thanks a great DVN team:
Jean-Clade Lebrun, President
Hector Fratty, CEO
Wolfgang Huhn, Senior advisor
Philippe Aumont, Head of Interior activity with Carsten Befelein
Eric Amiot, Head of lidar activity with Ralf Schaefer and Leo Metzemaekers
Carine Abouaf, Head of marketing
Geoffrey Lebrun, Head of operations
Christophe Lameiras, Head of finance
Daniel Stern, Chief Editor
the team of experts including Jean-Paul Ravier; Gerd Bahnmueller, and Michael Hamm
the team of worldwide colleagues Ann Ai and Tylon Zhu, in China; Eiichi Ono in Japan, and John Cooper in the USA

Don't forget the San Francisco DVN Workshop coming soon on 29-30 August!
That's just **three weeks** away, so if you haven't yet signed up, come and **register**.
We're looking forward to seeing you then and there!

Sincerely yours,

In Depth Lighting Technology

DVN Interview: Paul-Henri Matha Joins DVN

Paul-Henri Matha joins DVN today. He started out in the lighting field in 2002 as project manager, introducing the first LED rear lamps and the first microöptic lamps on Renault vehicles.

In 2009, he pre-developed the first full-LED lamp for his company; updated technical specifications for LED lamp, and developed the specification for a common LED headlamp driver. A few years later, he took up as General Manager for exterior lighting; seats, and safety systems in Romania. His 100-engineer team developed technology for all brands of the group in Europe; Africa; South America, and India. In 2015 he came back to France as Renault's lighting expert. His main activities were on the pre-development of low-cost full LED lamps, shared on more than 10 vehicles, and the pre-development of the first car equipped with Matrix headlamps.

In 2018 he joined Volvo Cars in Torslanda, Sweden, to be part of the development of the pixel headlamp on the XC40; the HD DLP lamp on the Polestar 3 and EX90, and the animated rear lamp on the Polestar 2; C40, and V90.

Early in 2023, at the Paris DVN Workshop, he was awarded Personality of the Decade In Lighting.

DVN: You have worked for car makers for many years. What is it like for you now, shifting gears?

Paul-Henri Matha: Strange feeling. I have been working for 25 years in a company with more than 40,000 people, with a high number of engineers. So it will change my life for sure. I am not the first one who is facing this sort of challenge, so I am confident. Fewer colleagues, more partners. More possibilities and opportunities.

DVN: What do you expect arriving at DVN?

P.H.M.: Simply a new life to create. Like you have done, Hector, when you have created this jewel which is DVN after you retired from Valeo.
New team, a lot of things to learn, and will try to give to the team my part of lighting knowledge and my numerous contacts, among R&D, legal and design colleagues, and friends. DVN has now a lot of partners, more than 240 if I am correct. I know only some of them, so my first job will be to meet them. In a second step I will be able to give my input and ideas to develop new things. One of them may be to extend the Workshop to lightings stylists and designers if we see an interest, just an idea that came to me during the DVN Paris Workshop when we did a joint presentation with T. Jon Mayer, our Volvo Cars exterior design chief. He was impressed by the conference and learnt so much.

DVN: What do you see as the new challenges in front of you, and how might you approach them?

P.H.M.: I am still young (laughs). I have some ideas, I have some good connection with automakers, set makers, tier-2 suppliers, GTB, OICA and SAE associations, in Europe, the US, China, India. Korea, and Japan. I have still the willingness to learn and discover new technology. These are my best assets. Good challenge for a Mid-career time. I am 46! I hope you will support me. To succeed I need you, DVN members!

DVN: Your next challenge is the success of the DVN workshop in San Francisco. Will you be present and what will be your tasks?

P.H.M.: For sure I will be there! Sillicon Valley is a major area when we talk about innovation, sensor, AD…and also lighting. We have Lumileds, Kyocera SLD, Luxit, a lot of automakers' R&D and design studios with focus on complete vehicle but also on exterior lighting. The DVN

team will visit one of them, and you will be able to see some insignts in the coming newsletters. That is why we are here!

During workshop in San Francisco, I will chair one of the major session, the tier-1 session, with participation of Valeo; Forvia-Hella; Magna; Plastic Ominium, and Mobis. Five very interesting lectures from the major stakeholders in US. I will also chair a round table to talk about ADB status in USA (is it all clear, or are we waiting for remaining clarification from NHTSA?) and new electrical architectures that are coming for exterior lighting. We will have automakers, tier-1 and -2 suppliers, and test houses on stage to talk about these main topics.

We can talk also about my main task from day 1 in DVN: I will be the Chief Operating Officer and progressively replace Hector as general lighting editor. My first agenda could be described like that:
1 · visit our customers; meet with them and discuss what they are expecting
2 · discover DVN company
3 · participate in US Workshop and work on Shanghai Workshop in November and Munich Workshop in January
4 · scout technology, information, and automakers and suppliers to find material for the weekly newsletter and monthly study
5 ·continue to participate in regulatory meetings (GTB, SAE…) to keep aware of legal evolution

All the DVN team welcomes Paul-Henri Matha to DVN!

Lighting News

Double HD-Matrix in the New Porsche Cayenne

LIGHTING NEWS

Hella have just launched the world's first high-definition matrix headlamp, available as optional equipment in the Porsche Cayenne. Their dynamic light projections provide additional support in safe vehicle guidance, on the motorway or at narrow construction sites, for example. it is a revolution in LED matrix systems, with over 32,000 individually controllable LED pixels per headlamp!

Porsche's body system lighting and vision systems director Robert Haehle, and lighting modules and regulation manager Benjamin Hummel gave a lecture about it at the DVN Workshop in Paris this year. They explained how Porsche use bifunctional modules combining ground illumination and additional high beam.
The functionalities are obtained with segmented ground illumination, with the brightness of the centre and side areas continually adjustable. Overall light performance is very high with more than 2,500 lm and 187,500 cd peak intensity. The µLED system is based on 256 × 64 px, so 16,384 LEDs with a pixel pitch of 50 × 50 µm, and an integrated driver. The main functionalities are:

- Low-; town-; country-; highway-; fog-, and rain-optimised beam patterns with swivelling light; static cornering light, and other-side-of-the-road travel mode;
- A performant set of high beam functions: glare-free high beam; adaptive highway high beam with a dynamic safety zone; glare-reduction of road signs;
- Driver information with lane light; construction zone light; oncoming traffic / passing light, and marking light, and
- Welcome/farewell animations.

After Lippstadt this year, Hella aim to launch production in Hella lighting plants across China, Mexico, Czechia, and Slovakia in the coming years.

New VW Touareg: ADB with 38k LEDs

LIGHTING NEWS

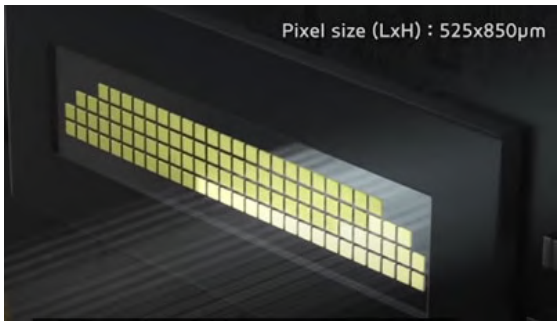
The new Touareg is the first VW with the new “IQ.Light – HD LED Matrix" headlamps with 38,432 individual LEDs. It's an interactive lighting system that aligns the light of all those microLEDs to provide the optimal beam on a real-time basis. The “Lane Light” ensures that the area in front of the driver is well illuminated and that the lane is followed. With the exception of the base model of the new Touareg, the new headlamps are standard on all models.

Each of the new headlamps is based on three light modules and thus three light points on each side, and the DRLs implemented with L-shaped LEDs. The beam-forming tasks are divided up amongst the three modules per headlamp. The outboard module is a dual-matrix item with 16 LED pixels for lighting the area in front of the vehicle and the additional high beam. At the center is the true HD matrix module with 19,200 individually-controllable LEDs to implement various lighting functions. The innermost module has a reflector for static and dynamic cornering lights and bad-weather lighting. The three modules each produce a point of light. The center crossbar in the radiator grille is also illuminated for the first time in the Touareg, and there's a bright red VW logo at the rear.

Hyundai Mobis' New HD Micro Module

LIGHTING NEWS

Hyundai Mobis' new lighting system technology comprises a DMD and HD microLEDs. Because the lighting power of a DMD is insufficient by itself for automotive use, HM used HD-micro lighting—light is emitted directly from the LEDs, so it has a higher light intensity than the DMD. Each pixel is selectively turned on and off.



The HD Lighting system can display the vehicle location or project a light carpet on the road for approaching pedestrians and can provide information on the direction of the vehicle. 10 applications for the new system are in progress.

M-Matrix (84 LEDs—not microLEDs) plus DMD was the configuration of the first generation of UHD headlamps introduced in the S-class Mercedes.

Opel Experimental Car Has New Luminous Signature

LIGHTING NEWS

The new Opel Experimental concept previews the direction the brand could take in the years to come.
It shows off state-of-the-art aerodynamic efficiency features (instead of wing mirrors, there are 180-degree cameras in the C-pillars), a spacious and bright interior with ultra-lightweight seats, and a next-generation head-up display. The electric crossover will have its world premiere at the upcoming IAA Mobility show in Munich.

CEO Florian Huettl says the car "gives a glimpse of future models and technologies, future design, even a new era and the future of the brand. This superb concept car represents a beacon and once again illustrates the pioneering spirit of Opel".

The absence of chrome is one of the most striking aspects of the car. Instead of chrome, there's exterior lighting and bold contrasting graphics. At the front, the new illuminated Opel logo sits at the centre of compasslike crosshairs. We find this same compass on the back, incorporating the brake light. The set combines with the Opel lettering, instead of the traditional Blitz logo, to form the central element. Around the front compass, we discover the next generation of Opel Vizor 4D. The added dimension is the addition of advanced detection technologies including sensors, lidar, radar and cameras.

General News

Auto.AI Europe 2023 Coming in September in Berlin

GENERAL NEWS

Auto.AI Europe is the leading tech summit on perception, machine learning, and AI, computer vision, and data processing for L^{3+} autonomous vehicles in Europe.

The show brings together all stakeholders who play an active role in pushing the state-of-the-art for highly- to fully-automated driving. The event is designed to provide insight into new technical innovations, the latest updates to standards, and pressing challenges regarding artificial intelligence for L^3 to L^5 AVs.

Key Topics

- Perception-driven machine learning for AD/ADAS systems
- Full stack software suites for AI
- Data processing and AI
- Next-generation sensor suites and computer vision
- Mapping and localisation

The 7th Auto.AI Europe show will be on 24–26 September 2023 at Titanic Chaussee Hotel in Berlin, and is expected to welcome more than 250 top automotive experts and decisionmakers in the field of autonomous driving.

2½ inspiring days will include 35+ hours of networking; 2 evening networking sessions (icebreaker and networking dinner); 250+ attendees; 30+ speakers and moderators; 25+ industry case studies, and 10+ innovative interactive sessions.

This year's highlight speakers are:

- Joachim Schaper, Head of AI and Big Data at Porsche Engineering
- Umar Zakir Abdul Hamid, Sr Lead Strategist Digital, ADAS & SW Product at CEVT,
- Tokihiko Akita, Sr Researcher Autonomous Vehicles at Toyota Technological Institute,
- Arvind Srivastav, SW Engineer, Radar Perception at Zoox, and many more.

Auto.AI Europe is collocated with **OSS.5 Europe**, a conference focused on safety-critical systems for high-level autonomy, and functional, operational, and systems safety. It's two focus areas, two agendas, and two line-ups of expert speakers and moderators, all in one wonderful opportunity to attend the sessions of both events with a single ticket.

More information is **available online**.

BYD Reach 5 Million EV Milestone

GENERAL NEWS

This month, BYD's 5-millionth new energy vehicle officially rolled off the production line, making them the first car company in the world to achieve this milestone.

Chairman and President Wang Chuanfu, expressed his heartfelt thanks to 5 million NEV users, government departments, media friends, upstream and downstream partners, peer friends and more than 600,000 employees.

As the earliest participant and promoter of the new energy automobile industry, BYD have pursued technological innovation for two decades. Up to now, BYD have 11 research institutes, more than 90,000 R&D personnel, and now submit an average of 19 patent applications every working day (and obtain 15 patent authorisations).

Wang Chuanfu said that the development trend of new energy is irreversible, and predicted that the penetration rate of new energy vehicles in the Chinese market will exceed 60 per cent in 2025, and the market share of Chinese automobile brands will increase to 70 per cent, achieving leapfrog development. At the same time, China has the foundation and strength to create world-class automobile brands, and China's automobile industry will surely give birth to a number of respectable world-class brands.