DrivingVisionNews.com

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Editorial!

US Workshop In The Rearview; Lidar Conference Ahead!

Time flies when you're having fun! That's how it's been in our preparations for the fourth DVN automotive lidar conference, to be held on 15 November. That's coming soon, and we've got a strong docket full of excellent speakers; take a look at this DVN Newsletter's in-depth report for more detail.

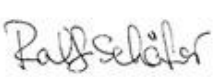
The Covid pandemic is not over, and of course we are all looking forward to meet in person again and interact in the most direct way—we all want to get back to normal. This is also the intention of our conference, but at the same time all participants need to be safe and this has the highest priority.

Last week we received information, based on the directives provided by the German Government, that if we assure that all conference participants are vaccinated and/or are recovered from Covid 19, we are allowed to organise our conference without additional restrictions such as masks and distancing.

We thought hard and carefully about whether to restrict access and check participants' vaccination/recovery status, and decided to plan our conference for vaccinated or recovered participants only. Thus we can allow personal contact in a safe environment. We will organise this conference as a live event only, not as a virtual or hybrid one. We ask your understanding and support of our approach.

Registration is now **open**, and we look forward to welcoming you at an inspiring, exciting, lively, and safe conference in Frankfurt.

On behalf of the DVN Lidar Conference team,



Ralf Schäfer
Senior Consultant to DVN

Leo Metzemaekers
Senior DVN Consultant

In Depth Lighting Technology

DVN Lidar Conference: Live and In Person This November!

The DVN team are excited to announce the 2021 Lidar Conference as a good old-fashioned 100 per cent live event! It will take place on 15-16 November with as few pandemic-related restrictions as possible. Our intent is an event to equal the networking opportunities brought to the lidar community during our 2018 and 2019 Lidar Conferences; this year's location is once again the well-known Dorint Hotel in Frankfurt Sulzbach.

LAST IN-PERSON DVN LIDAR CONFERENCE: FRANKFURT, 2019

Here is the draft docket, with information about the various sessions:

Day 1: Monday 15 November

13:00 Opening of conference; keynote speech I

13:30 Session 1: Automotive Lidar Applications I

Automakers will share their views on what it takes to implement lidar in a vehicle, and their thoughts and cost/benefit perspectives on if and why lidar has to be added to a car. Tier-1 system integrators

will describe their innovations and thoughts on how lidar can best be integrated in vehicles *Expected presentations from **BMW, Ford, Volvo** , **and Marelli** followed by Q&A*

Paul-Henri Matha, Technical Leader Exterior Lighting at Volvo
Title tbd

Frederic Chave, Marelli's Director of ADAS Sensor Product and Business Development, will present *Versatile use of Lidar modules into Smart Corner and grille.*

14:45 Session 2: Automotive Lidar Applications II

Automakers will share their views on what it takes to implement lidar in a vehicle, and their thoughts and cost/benefit perspectives on if and why lidar has to be added to a car.Tier-1 system integrators will describe their innovations and thoughts on how lidar can best be integrated in vehicles. *Lectures confirmed by **Stellantis, ZKW, Koito, and Fraunhofer ILT** followed by Q&A*.

ZKW's Autonomous Driving Technology Manager Georg Pitterle will present *Challenges of Lidar Integration - About Thermal, Cleaning, and Lens Issues.*

16:30 Session 3: Market and Ecosystem

This session will address drivers and scenarios on the evolution of the lidar market in value and volume. Special focus will also be given to partnerships and special promotion of lidar to propel the market. *Lectures confirmed by **Leddartech, Yole, and carhs.training** followed by Q&A*

LeddarTech's President and CEO Frantz Saintellemy will give a presentation *Why Flexible Platforms Are Required For Future ADAS/AD Deployments.*

Yole's Market and Technology Senior Analyst Pierrick Boulay will discuss his view on *Lidar technology roadmaps: trends, developments, and opportunities.*

Ralf Reuter, who is Marketing and Operations Director of carhs.training, will discuss the role of NCAP and ADAS: *NCAP Roadmaps Regarding the Assessment of Accident Avoidance Systems.*

17:45 Panel Discussion I

The first panel discussion will bring experts and executives together to discuss a challenging theme provided and moderated by DVN. Audience participation will be facilitated and encouraged!

18:15 Social cocktail and welcome dinner

Day 2: Tuesday 16 November

08:30 Opening of conference and keynote speech II by Valeo

09:00 Session 4: Automotive Lidar Systems I

Lidar suppliers will present their latest developments, roadmaps, and market experience. *Lectures confirmed by **Cepton, Xenomatix, Ibeo, and Blickfeld** followed by Q&A*

Ibeo's Global Operations Director Mario Brumm will expound on lidar and autonomous driving: *Lidar Quo Vadis: How Solid-State Sensors are Making Automated Driving Suitable for Mass Production*.

Xenomatix's CEO Filip Geuens will give a presentation about some real-life challenges of lidar: *How to Assure a Clear View For Solid-State Lidar.*

10:45 Session 5: Automotive Lidar Systems II

Lidar suppliers and specialists will present their latest developments, roadmaps, and market experience. *Lectures confirmed by **Continental, Velodyne, Lumentum, and Liangdao** followed by Q&A.*

Lumentum's 3d Sensing Product Line Manager Matt Everett will give a talk on *High-Power VCSEL Arrays For Next-Generation Lidar Systems.*

14:00 Session 6: Technology Enablers I

Specialist companies in the field of optics, light sources, measurement systems, and materials will present their latest developments. *Lectures confirmed by* ***Auer Lighting, Canatu, KSLD & University of Strathclyde,*** *and* ***Osram*** *followed by Q&A.*

Auer Lighting's Senior Sales Director Christian Passlick will describe his company's work on *Multilayer Coatings Enabling Advanced Sensor Solutions*.

Canatu CEO Juha Kokkonen will present a new transparent heater technology: *CNB Heaters as a Key Enabler of Anti-Weather Safe Autonomous Driving*.

KSLD Business Development Director Josip Kovacevic and University of Strathclyde LiFi Research Director Harald Hass will present about *LaserLight™, the All-In-One Enabler for Ranging, Lidar and High Speed LiFi*.

Osram Opto Semiconductors Senior Lidar Expert Clemens Hofmann will describe *Lidar System Advantages Using 905-nm Lasers With Wavelength Stability Technology.*

15:15 Session 7: Technology Enablers II

Specialist companies in the field of optics, light sources, measurement systems, and materials will present their latest developments. *Lectures confirmed by* ***Dioptic, Fraunhofer IMS, Trioptics,*** *and* ***3M*** *followed by Q&A.*

Dioptic's Inspection Systems Division Head Niklas Andermahr will describe his company's perspective on *Optical Quality Testing of Lidar Sensors.*

Fraunhofer IMS' Mobility Head Jennifer Ruskowski will give a talk about the *Future of Flash Lidar Components and Embedded KI for Lidar.*

Trioptics' Automation Manager Dirk Seebaum's presentation will describe *Solutions for Optical Alignment in Mass Production.*

And Jonah Shaver, a 3M Senior Development Engineer, will discuss 3M's latest progress about *Considerations for Lidar Operations in Inclement Weather Conditions.*

16:30 Panel Discussion II

The second panel discussion will bring experts and executives together to discuss a challenging theme provided and moderated by DVN. Audience participation will be facilitated and encouraged!

In the first two sessions, select automakers and tier-1 suppliers will give their views on the application roadmaps of lidar sensors and will discuss the opportunities of this technology for ADAS and autonomous driving. A special topic will be integration of sensors in body components like headlamps and roof structures.

Session 3 has a special focus on the lidar ecosystem's development and on expectations on lidar market developments, and will highlight safety aspects required by future NCAP evolution. An adjacent panel discussion will highlight key questions and involve the audience.

In sessions № 4 and 5, leading lidar suppliers will present their experience with automotive lidar, and address their challenges and expectations for the next five years until real L^3 autonomous driving will become reality.

Sessions 6 and 7 will address technologies to support the reliability of lidar systems under realistic conditions like snow, ice, rain, sandblasts, high humidity, exhaust fumes, and suchlike. This year's conference throws a strong light on component technologies which can enable lidar system suppliers to overcome or manage obstacles like these.

Another very important topic in this context, of course, is testing of lidar systems under various use cases, conditions, and applications with the ultimate goal to reach a common standard.

A panel discussion about the challenges of lidar systems in their automotive real-world applications and ways forward to come to a common solution for such issues will close the second day.

As you can see from the docket, there will be ample time for individual communication and networking during the coffee breaks, lunches and especially the social cocktail and dinner as a highlight on the first day.

Expo booths adjacent to the conference will provide an ideal composite venue for showcasing innovations and development work by a variety of companies.

NETWORKING AT AN EXPO BOOTH, 2019 DVN LIDAR CONFERENCE

Here's a matrix of corporate-sponsor participants already engaged:

The DVN team are really looking forward to this live event with the lidar community again and we will do our best to make it a remarkable, thrilling event for all of us, to the maximum degree possible!

Lighting News

Download DVN US Workshop Speakers lectures Now!

LIGHTING NEWS

The information and ideas shared at the 23rd DVN Workshop held last week near Detroit stand to make real contributions to decreased traffic fatalities in America. Speakers presentations in pdf format can be downloaded from DVN website by all DVN Gold members Now! In this week's DVNewsletter we bring you summaries of the first three sessions; you'll have more detailed information in the DVN Workshop Report coming soon.

DVN Chief Editor Daniel Stern served as Master of Ceremonies for the 23rd DVN Workshop held last week near Detroit. It was a sparkling show at the capacious Suburban Showplace venue in Novi, even though American Covid-related travel bans kept out DVN CEO Hector Fratty and all Europeans, Britons and others.

Their absence was keenly felt, but technology was put to work to try to bring their participation, at least virtually, to panel discussions and Q&A sessions interspersed with a wide array of lectures. A couple of dozen expo booths glittered with the latest lights, lamps, components, light sources, and test equipment. Outside, just steps away from the booths and conference room, two VSI demo cars bristled with ADAS and AD technology on display. Lunch on both days, a cocktail hour, and a gala dinner buffet gave ample time for networking, socialising, and in-depth perusal of the booths and demo cars.

DVN Workshop: Safety Situation on US Roads

LIGHTING NEWS


Michael J. Flannagan, UMTRI


Matthew Brumbelow, IIHS


John Bullough,
Mount Sinai-Icahn School of Me

The DVN Workshop last week near Detroit got started with Session 1, chaired by DVN Chief Editor Daniel Stern. Researchers talked about crash rates and related matters on American roads. Here's a quick summary of three lectures; watch for more information in the Workshop report to be published soon.

Darkness Affects Crash Risk: Comparisons Between Dark and Light Conditions
Michael J. Flannagan, UMTRI
Pedestrian and animal crashes are markedly more prevalent in darkness than during daylight: 6.7× for pedestrians and 5.5× for animals. Improved headlighting has strong potential to reduce pedestrian crashes. Michael Flannagan presented data from UMTRI work demonstrating that HID headlamps (instead of halogen) gave a 21 per cent night-crash reduction, while automatic high/low beam selection gave a 35 per cent reduction.

First Look at the Real-World Effect of the IIHS Headlight Ratings
Matthew Brumbelow, IIHS
The Insurance Institute for Highway Safety's headlight rating program, in operation since 2016, has had a strong effect on the performance of headlight systems on new cars: they're getting better. And IIHS data suggests vehicles with better headlight performance have lower nighttime crash rates after controlling for differences in daytime rates and other factors. A reduction of 10 visibility demerits, the equivalent of one overall rating band, was estimated to reduce the nighttime crash rate by 4.6 per cent.

Advances in Understanding the Safety Benefits of Adaptive Vehicle Lighting
John Bullough, Mount Sinai-Icahn School of Medicine
RVP is the relative visual performance model. It determines visual response times to targets under specified lighting conditions. RVP ratings are influenced by light level, contrast, size, and driver age. RVP scores have been strongly correlated with visual response times, detection distances, and real-world nighttime crash reductions in a number of studies. The potential nighttime pedestrian crash reduction with ADB instead of static headlamps is 12 per cent for 60- year-old drivers.

DVN Workshop: Automaker Contributions to Safety

LIGHTING NEWS

MIKE LARSEN, LUCIANO LUKACS, MICHAEL FLANNAGAN, DANIEL STERN

The second session at last week's DVN Workshop, also chaired by Daniel Stern, gathered automakers' contributions to safety improvement. Here's a quick summary of five lectures; watch for more information in the Workshop report to be published soon.

Matrix Beam and ADB in Real Traffic
Michael Hamm, Audi
From 2013 to 2021 in more than 140 models, 64 million cars were produced with ADB as an option. 6.4 million cars with ADB, are on roads in Europe and Asia. ADB has passed the largest imaginable field test of about 25 billion km without any single field recall or regulatory investigations.

How Does Volvo Handle Exterior Lighting When We Speak About Safety
Paul-Henri Matha, Volvo Cars
In the US market, Volvo targets to follow US NCAP and IIHS analysis with the aim for every model to win the uppermost Top Safety Pick Plus award. Volvo use the IIHS assessment in detail to minimise their headlamps' demerit ratings.

The Balance Between Seeing Light and Glare
Michael Larsen, Exterior Lighting Technical Lead, GM
An appropriate balance between seeing light and glare is needed, and based on nighttime pedestrian safety and glare research, this balance should emphasise improving seeing light.
ADB has the potential to greatly improve seeing light while reducing glare light. However, the FMVSS 108 proposal to allow ADB lopsidedly emphasised glare reduction. This could reduce the potential safety benefit of ADB in the US as compared to other countries.

Challenges of Implementing Exterior Lighting Features to Enhance Safety in a Global Market
Luciano Lukacs, Global Core Exterior Lighting Supervisor, Ford
The Ford F150 High Series is the first pickup truck to be sold in Canada with ADB, and likely the first vehicle of any type with an ADB system certified to SAE J3069. The future trends in the market are high definition, road projections, and light carpet. But questions remain about possible distractions, whether and which projections will be legal (reversing light? Turn signal?), and durable dependability

Lighting and Improving Safety
Shammika Wickramasinghe, Jaguar Land Rover
Four major factors that increase the risk of an accident at night are drinking, speeding, fatigue, and poor visibility. The combination of headlamps and road lights, with the darkness beyond them, can cause several problems for vision.

DVN Workshop: Technology Achievements to Increase Safety

LIGHTING NEWS

JOHN ORISICH, VALEO (DVN PHOTO)

Session 3, chaired by GM's Mike Larsen, invited setmakers to present their latest work. Here's a quick summary of five lectures; watch for more information in the Workshop report to be published soon.

How the Headlamp Rating HSPR Will Increase Nighttime Traffic Safety
Ernst-Olaf Rosenhahn, Head of Lighting Innovation, Marelli-AL
The intention of the GTB WG SVP is to provide a proposal for an assessment of ADB lighting functions, and to introduce a repeatable and objective rating system, the HSPR (Headlamp Safety Performance Rating). There is a kind of toolbox that can be used to get a higher rating: more light flux, automatic high/low beam switching, basic ADB, and high-resolution ADB.

Safer Roads Thanks to High-Definition Lighting Experience
John Orisich, Advanced Development and Simulation Manager, Valeo
After previous ADB with mechanical systems, then ≤25-segment matrix systems, then systems with 32 to 84 pixels, Valeo are preparing HD systems from 2.5 to 25 kilopixels. HD systems will improve ADB by reducing the shadow area and highlighting pedestrians without glaring them.
A good cleaning system for each sensor is necessary, as is good lighting for cameras.

4D Predictive Perception Powered by FMCW: Smart Headlamps for Enhanced Safety
L. Brisson (Varroc), R. Muenster (SiLC), and J. Pazhayampallil (BlueSpace)
A new generation of lidar with improved software has been integrated in a headlamp;
the integration of the complete system in a headlamp on a demo vehicle will be realised by Varroc early next year.

Digital Light—A Safer Way to Drive
Pavel Ondryska, Hella
Hella are developing SSL HD systems using two modules with different fields of view: a centre-field module with more than 15 kilopixels, and a full-field module first based on matrix, and then a high-resolution version with more than 15 kilopixels in 2023. The possibility to have the same definition with only one module and more than 100 kilopixels is forecast to 2028.

Spread of ADB and Contribution to Safety

Viren Merchant, New Technology Assistant General Manager, Koito-NAL

Optical modules have been redesigned for reduced height: from 60 to 42 mm for single-lens systems and 23 mm for multi-lens systems. Koito have developed their Bladescan system, a low-cost solution with 0.1° resolution despite having only 10 LEDs. Now they are preparing HD systems as well.

DVN Workshop: Regulation Harmonisation for ALS

LIGHTING NEWS

THE SPEAKERS AND PANELLISTS (IN ORDER OF APPEARANCE)

The Regulatory Session moderated by **Bart Terburg, GTB VP**, was focussed on the harmonisation of technical requirements for adaptive lighting systems. **Geoff Draper, DVN Senior Regulatory Advisor**, introduced the session, recalling that the simplification of the UN lighting regulations aims to produce requirements for objective testing provisions suitable for both type-approval and self-certification.

- Davide Puglisi, *GTB / Secretary of GRE IWG-SLR***,** presented a progress report on the activities of the GRE informal group relating to Stage 2 simplification of UN lighting Regulations.
- Michael *Piscitelli, CEO Sapphire Technical Solutions* reviewed the requirements and procedures, concerning the photometric testing of lighting and signalling devices, and the role of the goniophotometer in the laboratory.
- *Wang Wei (Ms), SMVIC / Secretary of SAC/TC114/SC21* reviewed that status of the GB standards GB/T30036-2013 and GB4795-209, relating respectively to AFS and Installation.
- *Rainer Neumann, Varroc Lighting / Chair of GTB Scientific Group (SVP) / Co-Chair of GTB Strategy Group,* provided an assessment of the value of AFS and ADB developments by means of practical tests, the experience of practical test drives at night during the development phase of ADB.
- *John Bullough and Mike Flannagan* presented their experienced views on the pros and cons of subjective and objective testing, using the special “chemistry” between them.
- The *Panel Session*with the speakers with Michael Larsen and Wolfgang Huhn,was an active exchange of view of the difficulties to be overcome if harmonisation of the technical requirements is to be achieved. The most significant issue is the question of how to test adaptive systems under real world conditions.

Driver Assistance News

GM to Invest in Momenta

DRIVER ASSISTANCE NEWS

General Motors will invest USD $300m in Chinese startup Momenta, who develop ADAS and AD technology and have earned business from the likes of Toyota.

GM China President Julian Blissett says "In China, customers are adopting electrification and advanced autonomous driving technologies faster than anywhere else in the world, and the agreement between GM and Momenta will accelerate our deployment of next-generation tailor-made solutions for our consumers in China".

Momenta was founded by former Microsoft executive Cao Xudong. They're developing ADAS intended for mass production and which are marketed to manufacturers or major equipment manufacturers. At the same time, Momenta are developing autonomous driving technology to collect a lot of valuable data useful for developing autonomous vehicles.

Motor Bella Perks Despite Rain

DRIVER ASSISTANCE NEWS

US automakers GM, Ford, and Stellantis were the biggest presences at Motor Bella (the rebranded NAIAS in Detroit).

Heavy rain cancelled Motor Bella activities on the first day, but traction was regained once the rain dried up subsequently. No longer a static auto show like before, MB offered more of an interactive experience with track laps and simulated off-roading on built-up hills.

Plans for next year are to hold NAIAS in late September in Detroit, with Motor Bella “probably incorporated into it,” organisers say.