DVN
Lidar

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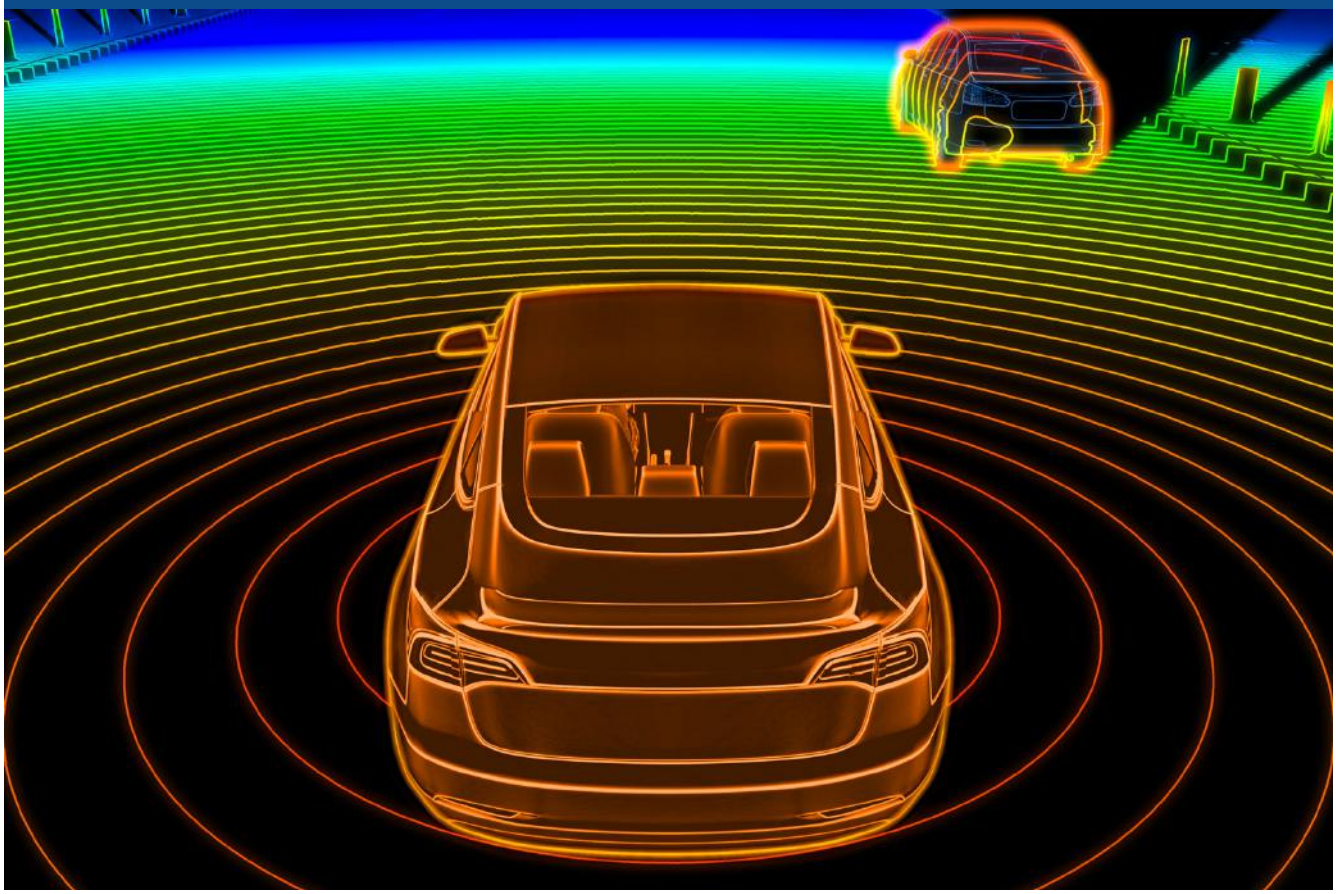


EDITORIAL

Semi-Autonomous Drive With Pure-Vision System: A Neverending Story

XPeng has released images of their latest EV, the P7+, which features camera-based self-driving technology. It's at L^{2+}, so roughly at the (actual) level of Tesla's vision-only systems. The company specifically points out this deletion of lidar. The full specifications and features will be unveiled when the car officially launches in Q4 this year. At the same time, Tesla has once again delayed their long-promised robotaxi prototype presentation. Removing lidar is also easier in China, since there is no Hands-off function, it is closer to L2 than L2+.

But would it be sufficient to comply with future stringent rules like US FMVSS 127? Most automakers and suppliers (not to mention safety experts and tech analysts) don't consider a pure-vision system adequate to cover all complex AEB scenarios, espacilly at night, in urban conditions. Find coverage in this week's DVN-Lidar newsletter.

Also in this edition, we report on our visit to Seyond in Suzhou. And take a look at the final docket for the upcoming DVN-L event in Detroit on 12 September. Speaking of which, don't forget to make your plans:

- Deep Dive 3 Workshop in Detroit (12 September)
- Lidar Conference in Wiesbaden (18-19 November)

We're ever so glad you're here with us in the DVN-Lidar community. Enjoy this 29th newsletter!

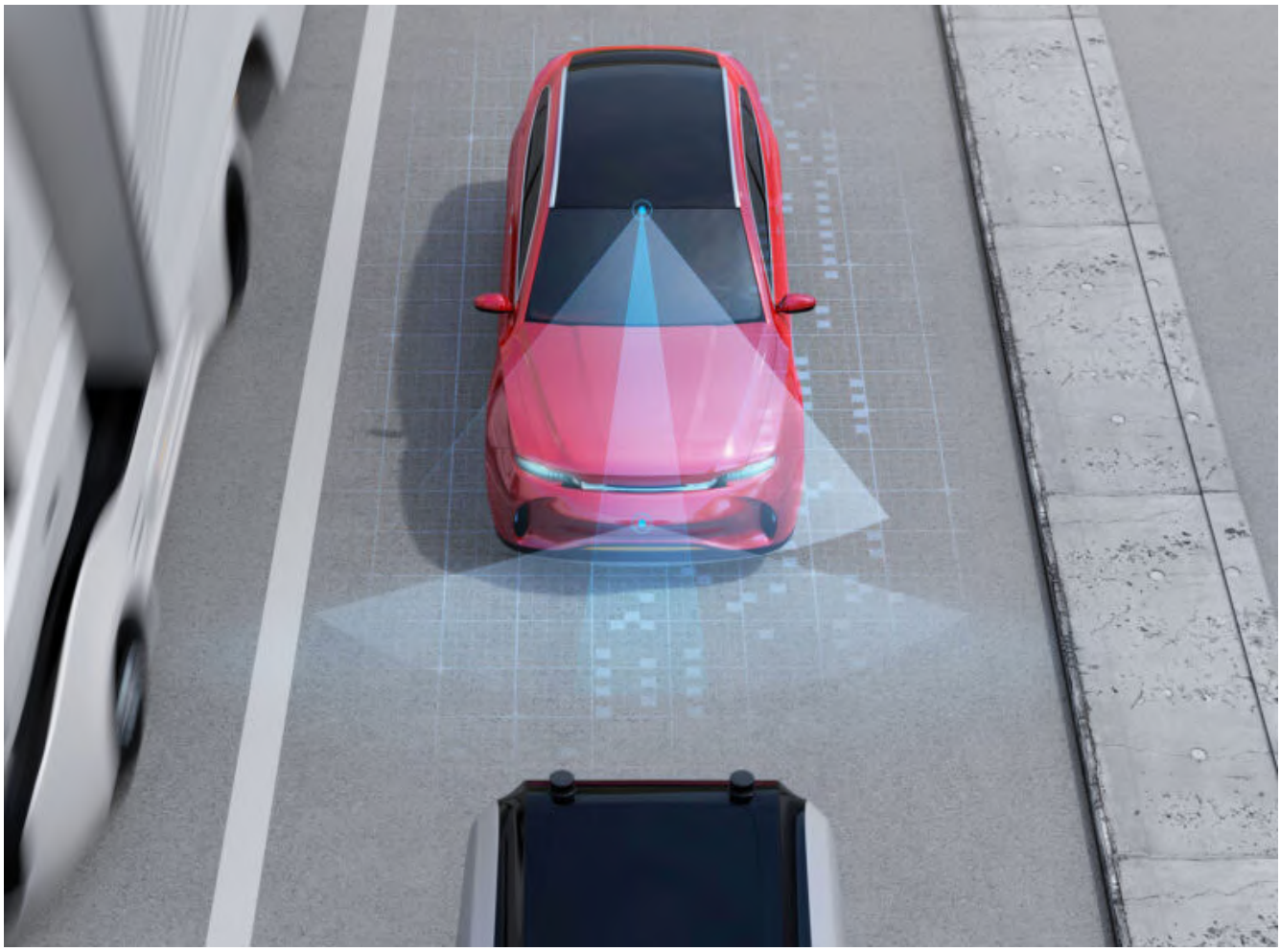
All best,

Alain Servel

DVN LIDAR ADVISOR

ADAS & AUTONOMOUS VEHICLE TECHNOLOGY

Lobbyist Group Says FMVSS 127 is Too Stringent



NHTSA's newly issued Federal Motor Vehicle Safety Standard, FMVSS 127, requires that by September 2029, all new passenger cars and light trucks with a weight limit of up to 10,000 pounds must have AEB and pedestrian AEB systems. These systems must prevent rear-end collisions at speeds as high as 62 miles per hour; identify pedestrians during day and nighttime, and activate at up to 90 mph when a frontal collision is likely and at up to 45 mph in the presence of pedestrians.

NHTSA says the regulation will significantly decrease rear-end and pedestrian crashes, potentially saving at least 360 lives and preventing around 24,000 injuries annually, while reducing damages and expenses related to crashes.

The Alliance for Automotive Innovation, however, is appealing to the agency to ease off on parts of the regulation. AAI CEO John Bozzella wrote to NHTSA saying the required speed standards are not achievable with available technology, and might result in an *increase* in rear-enders. He said the regulation will add burdensome costs of between $200 and $4,200 for manufacturers (and therefore higher prices for car buyers), for updates to hardware and software, without improving safety for either drivers or pedestrians.

Bozzella noted that data from NHTSA indicates only a single vehicle passed the stopping distance criteria set out in the final regulation. He suggested that NHTSA should implement a standard similar to one used in Europe that detects potential frontal collisions, alerts the driver, and initiates automatic braking to prevent or mitigate a collision by leveraging currently-available crash prevention systems.

Bozella lamented in his letter that "after a decade of shared and substantive work on AEB and a billion dollars invested, NHTSA inexplicably changed course and issued a rule that automakers indicated was not feasible with widely used braking technologies". Auto Innovators has suggested the rule's maximum test speeds should be lowered and that certain terms be clearly defined, like 'imminent' in the context of crashes.

AAI's petition contends the final rule contains requirements that are not practicable or objective—U.S. law requires vehicle safety standards to have both of these characteristics—and that the final rule did not consider comments that brought up issues regarding the feasibility, practicability, and potential unintended effects. It says the rule also lacks a clear explanation for its adopted requirements, and is an unexplained departure from long-established precedents in regulating vehicle stopping distances.

DVN comment

the Alliance for Automotive Innovation includes members like BMW, Cruise, Ford, GM, Honda, Hyundai-Kia, JLR, Mazda, Mercedes, Mitsubishi, Nissan, Porsche, Stellantis, Toyota, VW, and Volvo. It will be interesting to see how this difference of opinion resolves; NHTSA, in devising their regulation for Adaptive Driving Beam headlighting systems, rejected proven worldwide practice and diverged sharply from broad consensus among automakers, suppliers, safety experts, consumer groups, and subject-matter experts, whose subsequent objections and appeals were largely rebuffed. Despite the severe flaws in the US ADB regulation, industry has set to work devising compliant systems, while acknowledging as a sort of open secret that US-compliant ADB systems will be more expensive and less performant than rest-of-world systems. Perhaps FMVSS 127 will wind up as a similar story.

LIDAR BUSINESS

Lidar Business Newsbites

	Jun., 2024	YTD, 2024
Outputs	**1,003**	**4,929**
BEV	580	2,990
PHEV	422	1,937
FCV	1	3
Sales	**1,049**	**4,944**
BEV	612	3,019
PHEV	436	1,922
FCV	1	3

China NEV Market Still Hot-Hot-Hot
In S1-2024, 13.891 million vehicles were manufactured in China, up 4.9 per cent vs 2023. In the past month, 1.003 million NEVs were produced there, up 28.1 per cent year over year. Meanwhile, NEV sales reached 1.049 million units, up 30.1 per cent from a year ago and accounting for 41.1 per cent of the country's total auto sales volume.

Alphabet Commits Another $5bn to Waymo
Waymo has confirmed a $5 billion investment from Alphabet (Google). Self-driving cars spark debate over the feasibility of achieving complete automation without any need for human control. Firms such as Motional, Cruise, Waymo, and Zoox have progressed in this field despite challenges including pedestrian safety concerns, fluctuating financial support, and public resistance.

Cruise Autonomous Business Update
Cruise has restarted services in major cities such as Houston, Phoenix, and Dallas, advancing their goal to improve city transport and lessen traffic issues using cutting-edge self-driving technology. To facilitate their expansion, Cruise has pivoted their future autonomous vehicle projects towards the Chevrolet Bolt, stepping away from the Origin to circumvent regulatory challenges of its novel design.

Hesai Leads Global Lidar Market in 2023
Hesai has topped the global automotive lidar market share rankings in 2023, as reported by Yole Group in their Lidar for Automotive 2024 analysis. The report mentions 762,000 lidar units have been installed in passenger cars in 2023. Predominantly supported by Chinese car manufacturers like Li Auto, Hesai captured 26 per cent of the market. Hesai delivered over 300,000 ADAS lidar units and recorded design wins across 18 automakers, reaching about 70 vehicle models by Q1 2024.

In the second quarter of 2024, RoboSense sold about 123,000 lidar units, with 118,300 being for automotive applications. In the first six months of this year, RoboSense has nearly matched their total sales volume for the entire year of 2023. As of June 30, 2024, the company's cumulative lidar sales reached approximately 583,500 units, with automotive applications accounting for about 518,300 units. By May 17, 2024, RoboSense had secured mass-production orders for 71 vehicle models from 22 automakers and tier-1 suppliers

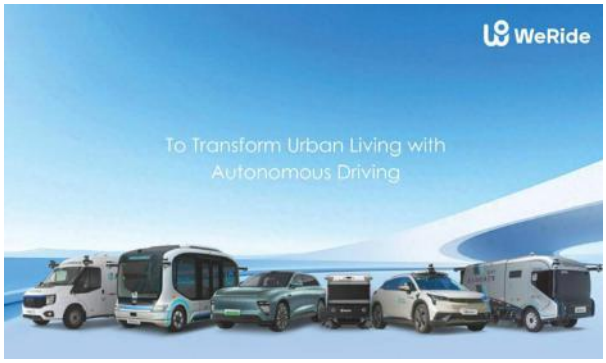
New Lidar Tech Advances L^4 Autonomy
Innoviz has established a partnership with an automaker to improve L^4 autonomous driving technology. Innoviz will be contributing their latest short-range lidar sensors to the automaker's L^4 self-driving platform. The aim of this venture is to achieve a production nomination within the next few months, which is pending an agreement on commercial terms.

LG Innotek in Car Sensor Push
LG Innotek is pushing to expand their vehicle sensing business into a $1.4bn operation by 2030. Their plan includes establishing a new lidar business, strengthening the vehicle camera module business, and positioning themselves as a vehicle sensing 'total solution provider'. The company recently established a dedicated lidar division, directly overseen by the CEO.

Baidu Chooses Hesai for Robotaxi Equipment
Hesai has been selected by Baidu as the exclusive provider of long-range lidar for Baidu's next generation robotaxi platform, the Yichi 06. Baidu plans to deploy 100,000 robotaxis in China, making this the first widespread application of robotaxis in the country. This deal is estimated to be worth $200m to $300m. Sixth-generation Apollo Go autonomous vehicles are 60 per cent cheaper than the previous generation, priced around $28,500. Hesai dominated the global robotaxi lidar market in 2023 with a 74-per-cent share.

LiangDao Funding Round Wraps Up
LiangDao Intelligence announced the completion of a new funding round, co-led by China Merchants Capital and E-Town Capital. The funds raised will be directed towards key lidar technologies, new perception functionalities, and data toolchain development, as well as 3D perception-based digital solutions for various applications. In Europe, LiangDao has a team of nearly 100 automotive engineers focused on the localization of intelligent driving functionalities.

July 26, lidar solution provider Hesai Technology on July 25 announced a partnership with SAIC General Motors (SAIC-GM) to supply AT series automotive-grade long-range lidar for the latter's upcoming car models. Their respective cooperative car models will begin mass production from 2025. Since it began mass production and delivery in 2022, the AT128 achieved shipments over 350,000 units delivered by the first quarter of 2024.



July 26, WeRide officially submitted its IPO application to the U.S. Securities and Exchange Commission (SEC), planning to be listed on NASDAQ. WeRide has developed a comprehensive business portfolio that includes autonomous taxis (Robotaxi), minibuses (Robobus), freight vehicles (Robovan), sanitation vehicles (Robosweeper), and advanced intelligent driving solutions.

LiangDao Intelligence partners with Japanese Tier-1 supplier for BEV data training

LiangDao Intelligence, has recently initiated a data collaboration with a leading Japanese Tier-1 supplier. The company will supply high-quality 4D time series data, integrating BEV (Bird's Eye View) vision and lidar point clouds, to enhance BEV perception algorithm training and development for their clients. The development of intelligent driving relies on the improvement of perception algorithms through effective data feedback and ample training data.

iMotion to AD Domain Controllers for European Luxury EV brand

Imotion has new deal to provide autonomous driving domain controllers to a European luxury electric vehicle brand. This marks a significant step after establishing their German subsidiary in 2023 and earning key certifications like ISO 26262, ISO 21434, and ASPICE CL2. The company has also developed localized driving algorithms tailored for EU roads, enhancing perception and decision-making systems to navigate local traffic conditions.

Plus AD Truck Firm in Development Pact with Jiefang Qingdao

Chinese autonomous truck developer Plus has signed a cooperation agreement with FAW Jiefang Qingdao Automobile to jointly define and develop a mass-produced gas-powered heavy-duty truck with factory-installed autonomous driving systems.

Arbe Robotics Picked by Automaker
Arbe Robotics has announced that one of the world's top ten automakers has selected Arbe chipsets for developing imaging radar. Their radar technology offers high resolution details, making it essential for L^{2+} and higher autonomy.

INTERVIEW

DVN-L Interview & Field Trip: Seyond

Dr Shinohara and Seyond & DVN team in front of the demo car

DVN had the pleasure to visit Seyond's facility in Sozhou, including labs and manufacturing lines. We met with Product & Strategy VP Dr. Leilei Shinohara; Marketing & New Business Incubation Head/China Linda Xu, and PR Lead Echo Chen. The DVN team included Lidar General Editor Eric Amiot and ADAS-AD Systems Expert Luc Bourgeois. The main purpose of the visit was to better understand the reasons why the lidar is expanding much faster in China than in Europe.

DVN: How fast is the Lidar market growing in China?

Seyond: In 2023, Automotive lidar sales reached a total volume of 550,000. In Q1 2024, Lidar sales reached 225,000, which means the market is growing up quickly.

DVN: What is your expectation for the robotaxi market?

Seyond: We do not see a significant business for robotaxis in the near future. There is no business case today in China due to the low fares of DIDI. In addition, you need to go to robotaxi stations to benefit from the service which is less flexible than a standard taxi driver / DIDI picking you up anywhere.

DVN: What is the maturity of Lidar in China ?

Seyond: Last year some OEMs investigated a few alternatives to remove the lidar sensor for SOPs in 2024 due to the cost, but this year most of them are convinced again they need the lidar.
The market is converging with ADAS systems using one front lidar only.The main technology is 905 nm today but 1550 nm is a niche for high performance lidars like the lidars from Seyond.
NOA systems are working well on highways. They do not need very frequent interventions, performing well >80 per cent of the time based on my home-office travel, Shanghai-Suzhou.

Integration on the roof is popular in China. Regarding Nio models, the lidar integration is simple, with passive cooling and no cleaning system. Some automakers have started using lidar to improve the AEB function: the max AEB speed is significantly improved with lidar.
An important benefit is a faster development/validation of ADAS/NOA applications: with lidar you do not need a full worldwide data base like a pure vision system which requires millions of km to be robust enough. We have seen some lidar projects going to production in less than 12 months, based on a pre-validation of our sensor on dedicated routes before project kick-off.
And you do not need HD maps to support SLAM applications The map is created and memorized by the sensors on the vehicle for the frequent travel routes using lidar (e.g., home-office).

DVN: are there hands off applications on the Chinese market for L^{2+} ?

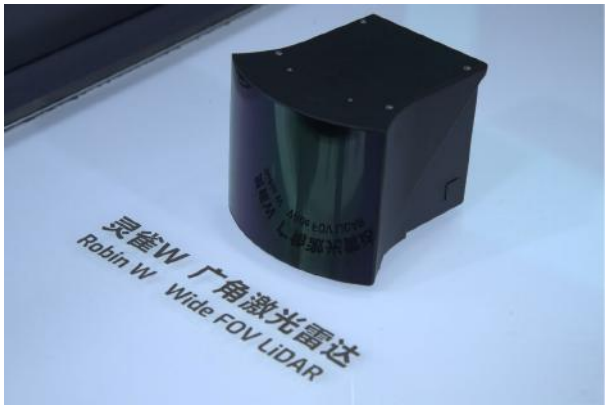
Seyond: In China, hands-off systems are not allowed by the regulation. This means there is no pure hands-off application, and the driver is warned after a certain time if they don't put hands on the steering wheel. Some automakers have extended this maximum duration above 1 minute on some models.

DVN: When do you see L^3 applications coming in China ?

Seyond: We expect to see commercial licenses by 2025 or '26.

DVN: Do you see BSD applications for Lidar coming ?

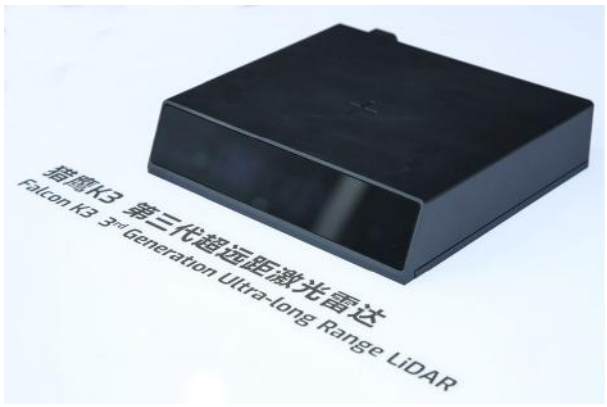
Seyond: Up to now the NOA application was focused on highways, now NOA applications are extended to urban and city environments. We expect at least three major automakers to launch NOA functions for urban/city environment with side lidars.



Wide-FOV lidar

DVN: What is your competitive position on the market ?

Seyond: Seyond is the only lidar supplier which has commercialized the 1550-nm and 905-nm technology lidar for SOP. 1550nm Falcon family is coming to the development of 3rd generation, already has over 300,000 mass production deliveries. 905nm Robin family's first product, 'Robin W1', is in production to support Nio's 4th-generation power swap station. The Robin W1 is going to be installed on the new Nio ET9 from beginning of next year. Together with one front ultralong-range Falcon to achieve a nearly 360 degree lidar detection coverage surround the vehicle.

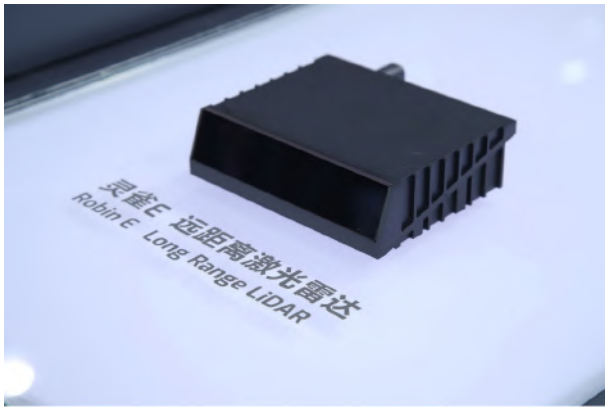


Ultralong-range lidar

Seyond has developped high performance sensors, with 500-m range, a resolution of 0.06° × 0.06° in the region of interest. Our main customer is Nio. Our new sensor, the 3rd generation Falcon, will achieve 300-m range for a 10-per-cent reflection target and a true optical resolution in vertically up to 0.03°, which is required to detect small objects of 15 cm height at 150 m. This new sensor has the capability to support L^3 systems. Lane detection can work above 100-m range.

One advantage of 1550-nm technology is that eye safety is less critical than 905 nm, which allows a high laser power to achieve a better range performance even more than 500 m, and with a low optical divergence angle for a better performance regarding blooming.

Seyond is also developing the price-sensitive front lidar, Robin E family with 905-nm technology. With a 30-mm ultra slim design, 200-m high detection range, resolution up to 0.1 degree, Robin E is not sacrificing performance for price.



Long-range lidar

DVN: which is the cost reduction curve for Lidar applications in China ?

Seyond: Front lidar is getting cheaper and cheaper, with a price target of $150 for 2025-26 SOPs. Regarding side lidars, we can expect even cheaper lidars with the future generation of SPAD which will allow 40m range with a 0,5° resolution.

DVN: What is your current business model ?

Seyond: We are selling lidars with point clouds (Nio is doing their own perception software), but we have perception software available for co-development. Some OEMs require to deliver both a point cloud and perception software.

DVN: how big is the team of Seyond ?

Seyond: Currently about 600 employees, with more than 500 in China.

DVN: How many manufacturing lines do you have in China ?

Seyond: We have four production lines in China. One with high capacity for the Falcon and a new one for the Robin. We are also going to have a small production line in our Sunnyvalle, California [facility] start operation from next year.

LIDAR AND IMAGING RADAR TECHNOLOGY NEWS

Luminar Launches Sentinel Software Suite

Luminar has introduced Sentinel, a software package to improve vehicle safety and autonomous features. This suite offers proactive safety, perception, 3D mapping and localization, simulation, and dynamic lidar. Automakers will start receiving it in Q3 as they seek to embed advanced technology into production vehicles.
Luminar's Sentinel suite combines their lidar technology and AI software, created mainly by Luminar with help from Scale AI, Applied Intuition, and Civil Maps. Rather than targeting driverless robotaxi services, Sentinel is tailored for car manufacturers to incorporate advanced safety and autonomy features into consumer vehicles. The launch of Sentinel prioritizes harmonizing with automakers' own software development processes. Swiss Re's thorough study found that cars with Luminar's lidar and prototype Sentinel software could cut accident severity by as much as 40 per cent.

Luminar CEO Austin Russell says his company is recognized for their "pioneering lidar technology in automobiles globally. Since 2017, we've also been crafting AI-driven software to enhance safety and enable autonomous driving. With most major carmakers lacking this software for advanced systems, our launch aligns perfectly with the new NHTSA mandates for US vehicle safety by 2029. We stand as, to our knowledge, the sole provider that fulfills these stipulations, positioning us to substantially increase our content value per vehicle profitably".

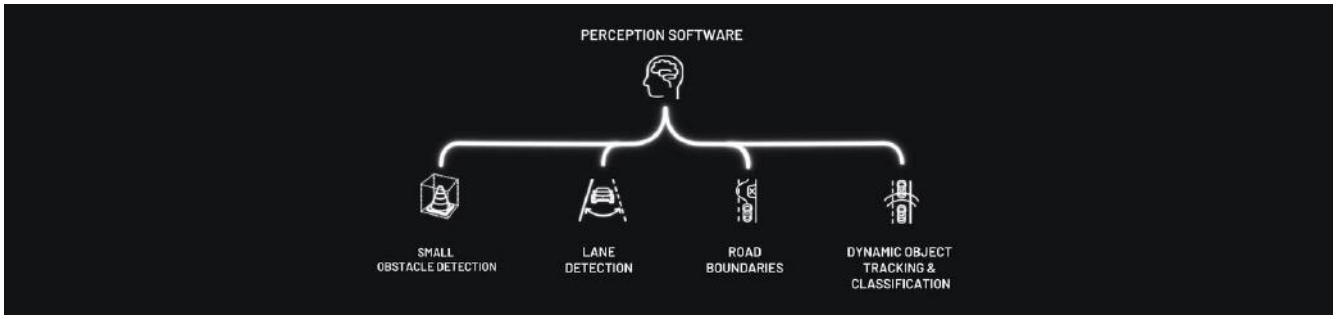
Debuted as a prototype in 2021, Sentinel has evolved significantly. Its ongoing development aims for automaker and tech company evaluations for integration into future safety and autonomy initiatives. Designed for diverse vehicles, including traditional and electric models, automakers can learn more about Sentinel and its evaluation program at Luminar Technology.

DVN comment

With a decade's innovation in hardware and advanced AI, Luminar collaborates with 50+ industry allies, including leading car manufacturers. Its work with Volvo Cars and Mercedes-Benz, along with tech partnerships like NVIDIA and Mobileye, positions Luminar to pioneer safety and autonomous features in production vehicles worldwide.

LIDAR AND IMAGING RADAR TECHNOLOGY NEWS

Microvision Perception Software to Make Driving Safer



MicroVision’s perception software takes the massive amount of data and measurements from a vehicle's sensor suite and abstracts the critical information. So, when the vehicle drives, the key information is easy to process and can be used for quick decision-making. For instance, if a car ahead is slowing down, the perception software processes this fact in split seconds and enables a timely response.

The integrated perception software works hand in hand with MicroVision’s sensors. MicroVision’s perception software is the brain behind small object detection, lane detection, road boundaries and dynamic object tracking and classification. Object recognition is at the core of perception, classifying objects and road users as well as small obstacles and overhanging load. This is achieved using sophisticated algorithms to interpret complex visual information from one or multiple lidar sensors. The software provides an incredibly accurate and detailed representation of the environment, enabling automakers to achieve a safe, reliable, and competitively advantageous driving application.

The integration of perception software into lidar sensors reduces power consumption because MicroVision uses a highly efficient SoC and optimizes the perception software for processing sensor measurements directly on the sensors. As external ECU hardware is expensive, this approach lowers costs and the system architecture is simplified as the sensor-specific perception processing is already done. These advantages allow the automaker to focus on the driving function.

DVN comment

MicroVision, with more than 350 employees and offices in Redmond, Detroit, Hamburg and Nuremberg, is a pioneer in MEMS-based laser beam scanning technology. They develop lidar sensors for the automotive industry and solutions for advanced driver assistance systems, autonomous vehicles, and other applications. With the acquisition of Ibeo Automotive Systems in January 2023, they are the only supplier with more than 50 years of combined experience on lidar’s technology and its integration in ADAS systems.

X-Fab's New SPADs for Near-Infrared Applications

X-Fab Silicon Foundries has added a dedicated near-infrared model to their array of single-photon avalanche diode (SPAD) devices.

This NIR model joins X-Fab's SPAD device portfolio following the previous version launched in 2021 and is formulated using the company's advanced 180nm XH018 process technology. The fabrication process has an extra step which significantly boosts signal levels while maintaining a low noise profile. Key performance metrics such as dark count rate, after pulsing, and breakdown voltage remain unimpeded by these improvements.

Applications include time-of-flight sensors for industrial settings, vehicle lidar systems, and FLIM research, along with various medical applications. The new version exhibits enhanced sensitivity across the near-infrared spectrum, with a 40- and 35-per-cent increase at essential wavelengths of 850 and 905 nm, respectively.

The latest SPADs simplify the construction of filters excluding visible light, owing to inherent UV and visible radiation suppression. This results in simpler filter architectures with reduced components. Compatibility is also thoughtfully considered; the dimensions of the new devices match those of the preceding series, guaranteeing a smooth transition to higher-performance devices for current clients.

To assist engineers in adopting the near-infrared SPAD devices, X-Fab has put together a detailed process design kit (PDK), complete with thorough documentation and helpful application notes. Engineers are supported through models that facilitate both optical and electrical simulations, easing integration challenges and expediting design processes.

Availability of the enhanced NIR SPAD begins immediately.

DVN comment

X-Fab focuses on mixed and high-voltage solutions for the automotive industry, using high-precision and high-voltage CMOS technologies with a complete digital environment. They support voltages ranging from small precision signals to kV ranges, using CMOS, SOI, SiC, and GaN technologies. Sensors and actuators can be combined with control logic through dedicated modules and advanced assembly techniques. The wafers are produced in high-quality, IATF 16949-certified facilities suitable for automotive manufacturing.

OTHER-TECHNOLOGIES NEWS

Mobileye Imaging Radar Takes the Wheel

Currently, camera-only systems make conditional, limited hands-free autonomous driving more or less feasible. Nevertheless, the drive towards full autonomy presents issues like reliability in complex settings. Addressing these challenges is crucial for passenger and pedestrian safety, and for progress towards fully independent vehicle operation.

Most industry experts agree that safe autonomy requires more than just cameras. Mobileye adopts True Redundancy™ which combines lidars with a new type of imaging radar for independent sensing from cameras, enhancing safety and autonomous functions. Their radar technology plays a significant role in enabling autonomy.

While traditional ADAS radars work well in uncomplicated scenarios by tracking moving objects, they struggle with stationary ones. Mobileye's innovative radars sidestep this limitation, functioning independently of cameras or lidars, aligning with the tenets of the True Redundancy design.

Since its development, Mobileye's imaging radar was deliberately engineered to enhance autonomous driving functions, aiming to surpass human sensory and cognitive abilities on the road. Its sophisticated imaging boasts a greater dynamic range compared to conventional radars, exemplified by its capacity to identify a child at a distance of 150 meters even with a bus as close as 10 meters to the vehicle.

Mobileye's imaging radar outperforms conventional radar by offering superior object detection with better resolution in elevation. This advanced detection allows the technology to recognize objects in specific situations like static cars under a bridge. It creates a dense point cloud that enhances autonomous vehicle (AV) functionalities, including precise lane positioning and swift responses at elevated speeds. The system has the capability to notice road participants—pedestrians, motorcyclists, cyclists—up to 350 meters away and detect potential dangers from as far as 230 meters.

There is a significant transformation underway in the automotive sector, particularly in the field of radar technology, to improve and expand upon existing functionalities. The Mobileye Radar line comes equipped with superior angular resolution, an extensive dynamic range, and robust suppression of sidelobes, which facilitates object detection under difficult conditions. It provides dependable recognition of compact and low-reflectivity objects on motorways, even at up to 130 km/h. The launch of Mobileye's imaging radar is part of their ongoing commitment to driving innovation and pioneering new specialties in the automotive field.

DVN comment

Mobileye's imaging radars leverage superior architecture, including Massive MIMO antennas, an advanced in-house radio frequency setup, and precise sampling. This results in reliable object detection and a broad dynamic range. The integrated chip design ensures efficient processing while sophisticated algorithms interpret radar data, creating a detailed 4D image of the environment up to 300 meters away. The radar's wide field-of-view, 140 degrees at medium distance and 170 degrees close-up, allows for more precise detection of pedestrians, cars, and obstacles, particularly useful in densely populated urban settings.

AUTOMATED DRIVING

AD Newsbites

Former Velodyne CEO's Deliverybot Startup Drops Lidar
lidar is fundamental in the autonomous vehicle and robotics sectors, but it is costly. So former Velodyne CTO and CEO Anand Gopalan's new Vayu Robotics venture is avoiding lidar use—and marketing this no-lidar approach as an advantage. Launched in 2022 by Gopalan after Velodyne went public via SPAC, Vayu aims to lower costs and enhance scalability for delivery robots.

AutoX Unmanned Robotaxis allowed for passenger transport in Shanghai
At the World Artificial Intelligence Conference on 4 July, AutoX's robotaxi was granted the first license in Shanghai to operate fully unmanned passenger transport. This follows their achievement of receiving the city's initial driverless road test license in 2023. AutoX has obtained driverless permits in six regions—Shanghai, Beijing, Shenzhen, Guangzhou, Silicon Valley, and Hangzhou—all adding up to a service area greater than 600 square kilometers globally.

Beijing City Mulls AV Ride-Hails
The Beijing Municipal Bureau of Economy and Information Technology recently sought public input on the draft Beijing Autonomous Driving Vehicle Regulations. This draft permits autonomous vehicles that comply with regulations to perform road tests and provide services such as bus transit, ride-hailing, car rentals, and cargo transport (excluding hazardous materials), alongside specialized jobs like sanitation and security patrols. It also encourages the growth of essential automotive component sectors, setting up quality inspection bodies for self-driving parts, and regulated access to and sharing of autonomous vehicle data. Furthermore, it focuses on fostering a collaborative data ecosystem within the self-driving vehicle industry.

Pony.ai Gets Permit for Shanghai Unmanned Robotaxi Service
Pony.ai has secured a permit enabling users of Pony's app in the Pudong district of Shanghai to hail unmanned robotaxi services along a 205-kilometer path. The Shanghai permit follows previously-granted permits for unmanned operations in Beijing, Guangzhou, and Shenzhen; now the company offers unmanned robotaxi service in China’s four largest megacities.

XPeng’s First EV Without Lidar Will Be Called the P7+
Following reports that XPeng's upcoming battery electric vehicle would ditch lidar for cameras, the company has now confirmed the model's official name, P7+, and released initial images.

Hesai, Zelos Partner for Logistics AVs
Hesaihas partnered with Zelos to accelerate the mass production of autonomous logistics vehicles, unveiling Zelos’ latest autonomous delivery vehicle, the Z5. It features Hesai’s high-performance AT128 long-range lidar, making Hesai the exclusive lidar supplier.

May Mobility, SouthWest Transit in US AV Microtransit Pact

May Mobility and SouthWest Transit have announced a partnership to introduce the first autonomous microtransit service in Eden Prairie, Minnesota. Scheduled for a fall launch, the service aims to enhance public transport by integrating May Mobility's AVs into SouthWest Transit's ecosystem.

Semi-Autonomous Truck Pilot Launches in Germany

Iveco, DM-Drogerie Markt, DSV, and Plus have announced the start of their semi-automated truck pilot in Germany. This pilot will use an Iveco S-Way heavy-duty truck, equipped with PlusDrive® technology, to deliver goods from the DM distribution center in Waghäusel to the DSV center in Gernsheim.

Autonomous Mobile Robots from Continental, Amazon

Continental Mobile Robots, in collaboration with Amazon Web Services (AWS), has introduced advanced software solutions for Autonomous Mobile Robots (AMR). This partnership emphasizes managing the hybrid deployment of Continental's scalable AMR navigation software stack, applicable to various product lines, including Intralogistics and Agriculture. With AWS' cloud proficiency, Continental has developed a robot autonomy software stack, partnering with the AWS Prototyping and Cloud Engineering team to expedite innovation and implement the initial version of this solution.

CalmCar Signs Agreement with Guangzhou Public Transportation Group

Intelligent driving provider CalmCar signed a strategic cooperation agreement with Guangzhou Public Transportation Group. The partnership aims to support the comprehensive development of public transport in planning, construction, operation, maintenance, and safety, fostering a more favorable environment for deep integration and sustainable development in the city. CalmCar has received strategic investments from industry leaders such as ZF, SAIC Motor, BAIC Group, China Unicom, and SureKam. Their core mass production customers include global automakers and suppliers like Hozon Auto, Zeekr, Dongfeng Motor, VinFast, ZF, Autoliv, and Aptiv.

Buick Century Gets OTA Update

SAIC-GM's Buick brand announced the official rollout of the V3.3 OTA update for their Century minivan. When the LCC (Lane Centering Control) function is activated, the vehicle will automatically upgrade to NOP (navigation on pilot) upon entering general or urban expressways covered by HD maps. This system provides navigation assistance across a full-speed range of 0-130 km/h, offering refined and efficient automated car following and stop-and-go functionality in traffic congestion scenarios. NOP, available in 348 cities, supports flexible and efficient lane changing, smart avoidance of merging vehicles from ramps, adjacent large vehicles, and intelligent speed adjustment.

Beijing Autonomous-Drive Reg Comments Invited

The Beijing Municipal Bureau of Economy and Information Technology has solicited public feedback on the Beijing Autonomous Driving Vehicle Regulations. The draft supports autonomous vehicles that meet relevant regulations to carry out road tests, demonstration applications, demonstration operations, and road transport service pilots in a safe and gradual manner. So far, the demonstration zone has issued road test licenses to 31 companies, with autonomous driving test distance exceeding 28 million km. By the end of the year, the city expects to achieve full coverage of intelligent roadside infrastructure across 600 km^2.

Honqi Robotaxi Gets Road Test License
FAW Group's premium passenger car brand Hongqi received a permit for unmanned road testing for their L^4 Robotaxi from the Beijing High-level Automated Driving Demonstration Area (BJHAD). The third-generation robotaxi has completed over 100,000 kilometers of autonomous road test within the BJHAD. The test routes cover more than 90 per cent of the designated area's roads.

Neolix Gets Green Light from Lishui
Unmanned cargo delivery vehicle maker Neolix received the first Intelligent Connected Vehicle Demonstration Application Notice from the city of Lishui, marking the official launch of its unmanned delivery vehicles on public roads in the city. Each vehicle can handle over 1,000 package deliveries per day. Equipped with advanced BEV algorithms, the X3 uses 12 high-definition cameras and two lidar sensors, offering a 360-degree view with a 120-meter perception range.

AutoX Scores First Shanghai Unmanned Passenger Transport License
AutoX has received Shanghai's first fully unmanned passenger transport permit, following the Shanghai's initial fully driverless road test license in 2023. AutoX has already secured driverless permits in six major cities including Shanghai, Beijing, Shenzhen, Guangzhou, Silicon Valley, and Hangzhou, covering a total area of over 600 square kilometers globally. In these cities, AutoX has deployed large-scale robotaxi operations and has begun commercial operations in Shanghai and Shenzhen.

WeRide Launches Smart Street-Cleanup Project
WeRide has announced the official launch of their intelligent municipal road sanitation project in Dongguan's Binhaiwan New District. The project covers nine urban roads with complex conditions. The fleet of WeRide's Robosweeper S1 and S6 vehicles will operate autonomously in key areas, including motorways, non-motorized vehicle lanes, sidewalks, safety islands, and bridge surfaces.

WeRide in Expressway Mobility Pilot
WeRide has received the official notification to commence a commercialization pilot for expressway mobility services within the Beijing Municipal High-Level Autonomous Driving Demonstration Zone (BJHAD). The public can now use the WeRide Go App to book rides from 242 pickup and dropoff points within the BJHAD and at Beijing Daxing International Airport.

Pony.ai Launches Paid AV Shuttle @ Beijing Daxing Airport
Pony.ai has launched their paid autonomous shuttle (robotaxi) service at Beijing Daxing International Airport, becoming one of the first companies in Beijing to obtain a commercial pilot license for expressways with a safety operator in the driver's seat. Pony.ai's Daxing Airport Robotaix service uses a fixed pricing mechanism similar to its urban services

AV Buses for Shenzhen
Shenzhen plans to deploy 20 autonomous buses by end of 2024. This initiative follows the selection of Shenzhen, along with 19 other cities, for a pilot program aimed at integrating intelligent vehicles with roadside perception and cloud-based control to enhance safety and efficiency. The autonomous minibuses, equipped with high-definition cameras and lidar sensors, will feature a safety supervisor on board to take control in emergencies. The fare will be C¥1 (14¢ USD) per ride.

NHTSA Greenlights Autonomous Airport Parking Shuttles
The US National Highway Transportation Safety Administration has approved the public use of autonomous shuttles in a large on-airport parking lot, to provide easier access between parked vehicles and AirTrain JFK stations. This is the Port Authority's fourth pilot of self-driving technology at its major airports and the first to involve unionized contract staff as safety monitors.

DVN-LIDAR DEEP DIVE

Final Docket: DVN-L Deep Dive 3 Workshop (Detroit, 12 September)

11th September (Welcome Dinner)

18:00 Cocktails
19:15 Dinner

12th September (Lidar Deep Dive 3 Event)

8:00 Registration
8:30 Opening and introduction of participants

Session 1: Lidar Applications & Technology, FMCW Lidar
9:00 **ADAS Tec**: Onur Yucedag - Lidar applications for automated shuttles and buses
9:20 **Luminar:** Dr Zoran Jandric - Unexpected Gifts, Impact of AV Lidar Research on Automotive Safety
9.40 **Robosense**: Scott Skelton - Low-cost Lidars for L2+ Applications
10:05 Coffee Break
10:35 **DVN**: Eric Amiot - Market Growth factors in China and US/EU (L2+/L3/L4)
11:00 Two breakout groups, each discussing two questions from the speakers
(e.g. market perspectives with NOA in China and NTHSA FMSV 117 in the US)

12:35 Lunch Break

Session 2: Lidar Integration & Cleaning, Sensors Performance & Fusion for AVs
13:30 **Voyant**: Peter Stern - FMCW Lidar using photonic integrated circuits
13:50 **Momentive -tbc:** Weathering resistant coating for Lidars
14:10 **Valeo Brain** : Waqas Malik - Sensors for AVs: Lidar, 4D Radars, IR cameras
14:30 Coffee Break
15:00 **fka GmbH:** Amogh Sapkal - Lidar Standardization Activities Worldwide
15:30 Two breakout groups, each discussing 2 questions from the speakers.
16:30 Breakout group reporting and discussion
17:00 Closing Remarks

DVN Contacts: Martin Booth, Eric Amiot