DVN

Sensing & Applications

Monthly newsletter #3.2

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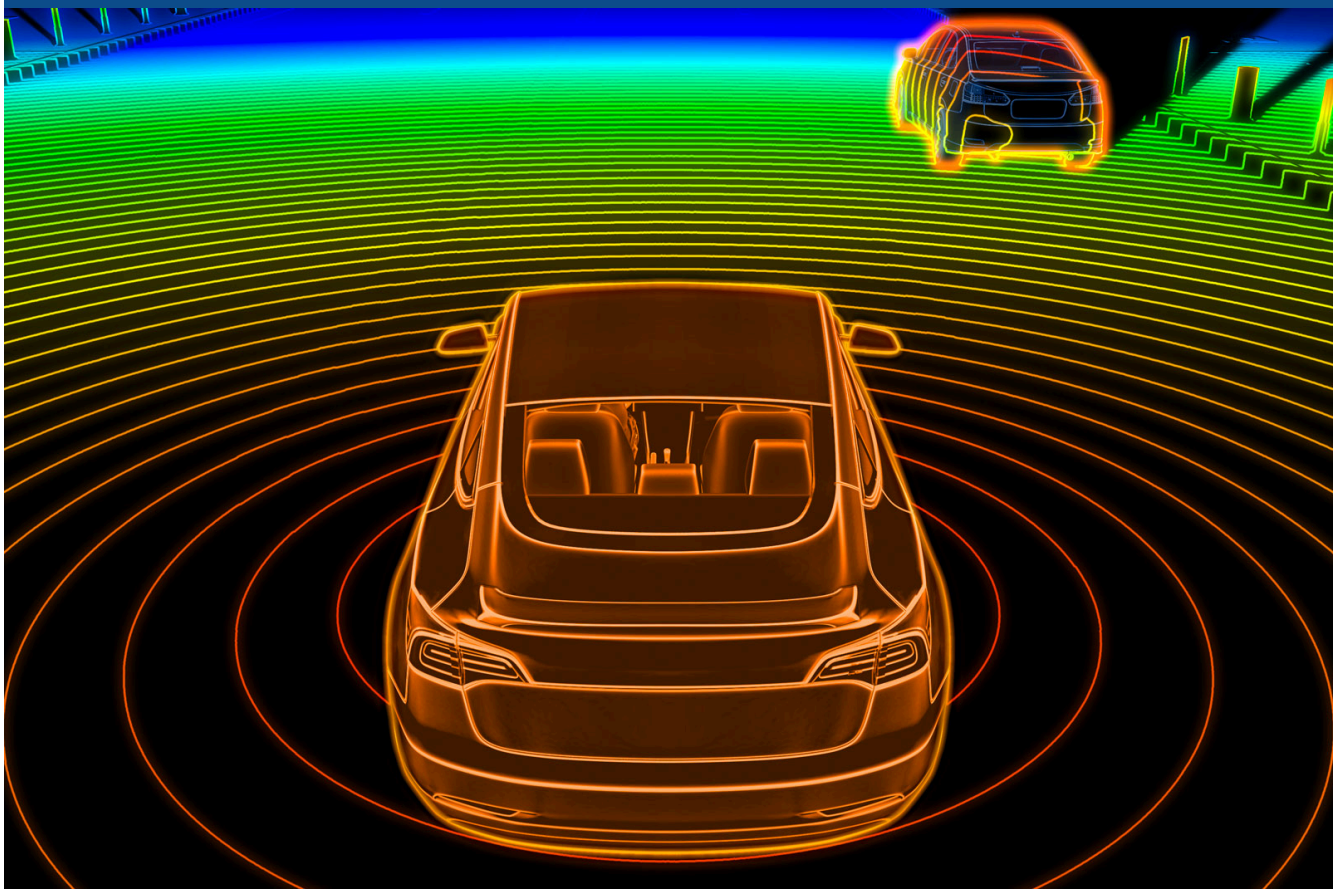
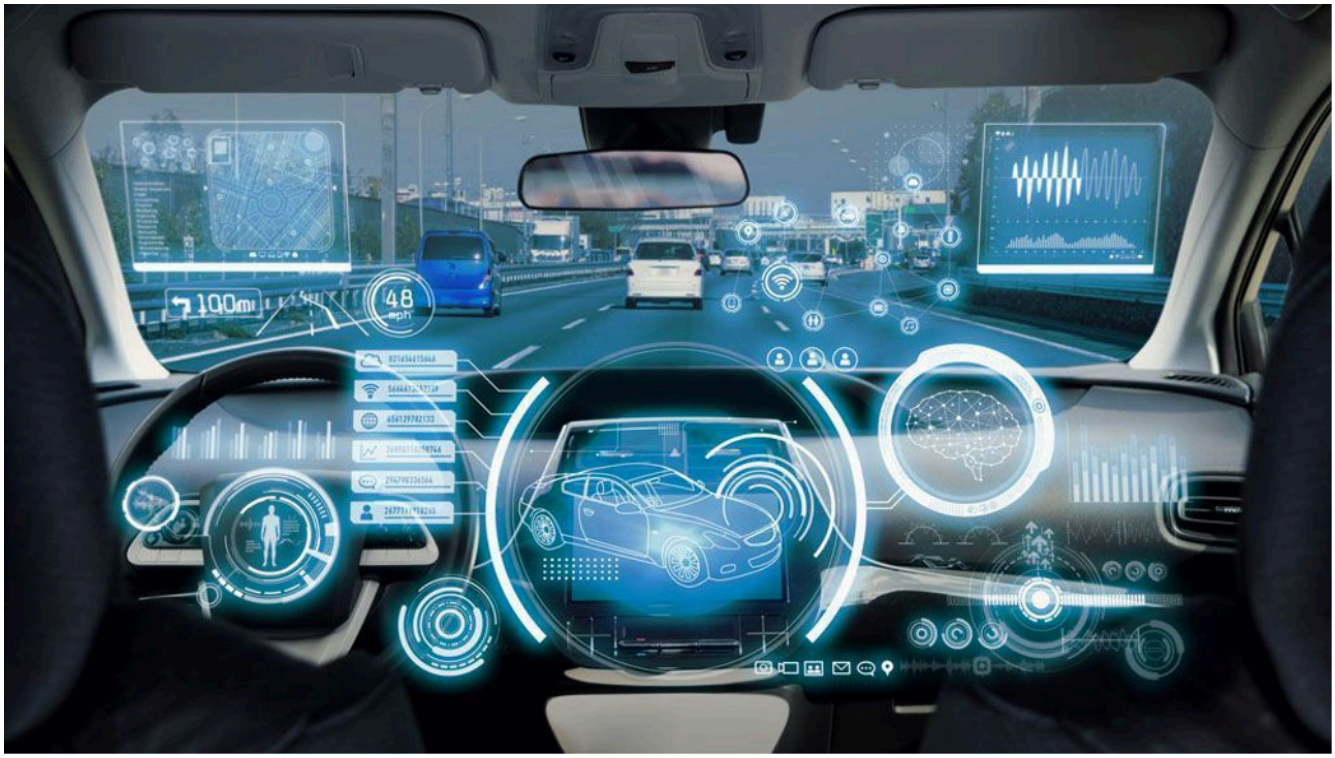


EDITORIAL

DVN ADAS/AD Applications Newsletter March 2025



Many Auto OEMs reported Q4 2024 earnings in February and a number of them commented on ADAS adoption. GM's L2+ map-based Super Cruise is rolling out on more models in 2025. GM stated that 60% of its 360K customers use it regularly and they expect the fleet to double in size in 2025. The system is offered with a 3 year trial on some models (as a $2500 option) and at the end of the trial about 20% of owners signed up for the continuing subscription at $25 per month. GM aims to approach $2B in annual revenue from Super Cruise within 5 years. Ford's Blue Cruise equipped vehicles doubled to just under 700K (in operation), driven partly by a pricing drop and customers have driven 300M miles hands-free. For L3 and beyond, Ford is still developing that capability internally (with the old Argo team) but also looking at outside solutions. BYD also announced the roll out of its latest L2+ autopilot system on vehicles priced as low as $10,000 in China.

As we can see from some of the news stories this month, there are an increasing number of robotaxi and robotruck announcements. Tesla just applied for a robotaxi license in California, but with human supervision for now and Waymo also announced that it has doubled its weekly robotaxi rides to 200,000 in less than a year. According to Waymo they are now logging more than 1 million miles per week.

ADAS and AD technology is becoming more mainstream, and I had a chance to attend the Silicon Valley Auto show to see some of the latest consumer offerings. Almost all of the vehicles at the show now have at least a minimum of lane keep assist, ACC and AEB.

Don’t forget our upcoming AEB workshop in Detroit, April 10th. We still have a few speaking opportunity and exhibit slots open (please contact me if you are interested) and you can register to attend at the drivingvisionnews.com website.

Thank you,

Martin Booth

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SPECIAL REPORT

DVN Special Report – BYD “God’s Eye” Driver Assist

BYD recently announced that it will offer its “God’s Eye” driver assist system on all new models, including the Seagull, priced as low as $10,000. BYD sold over 4M vehicles in 2024, including 400K overseas.

The ADAS system has three variants with different capabilities – the C (DiPilot 100) uses cameras and radar only, the B (DiPilot 300) adds one lidar and the A (DiPilot 600) uses 3 forward facing lidars for fully automated driving. The DiPilot hardware is Nvidia Orin N or X-based and the number represents the AI performance (TOPS). A Horizon Robotics processor is also used in the 600 system. Hesai recently won a new contract to supply lidar to BYD.

The base system has 12 cameras, including a front tri-ocular camera with 2x 8MP stereo cameras and an 8MP telephoto camera. There is also a forward plus 4 corner radars and ultrasound sensors. The system is activated by a separate paddle switch behind the steering wheel. The system can be used for highway pilot (lane-keeping, on/off ramp) up to 100km/h and partial autonomous driving is possible through route learning of common routes. After it learns the route – it can do it autonomously. Limiting the base system to “learned” routes reduces the size of the AI model and the amount of compute hardware required to support it. The system will start and stop at traffic lights and intersections. The system also supports full self-parking and provides valet parking (so you don’t have to be in the car).

The B system adds a lidar above the windshield and a more powerful compute which allows the system to see beyond the headlights and provides more reliable data capture versus camera only in other environmental conditions. The system can drive autonomously under more conditions versus the base system.

The flagship A system uses 3 roof mounted Lidars on the Yangwang models – creating denser point cloud and allows complete driverless operation, including city driving. BYD has also demonstrated its capability on the racetrack, even at night. China does not currently allow hands-off, so hands-on have to be there at all times. Huawei, Nio, XPeng and others are also offering a FSD system. Tesla FSD is currently not fully released in China due to insufficient training data on Chinese roads.

BYD has one of the largest ADAS/AD engineering teams in the industry and the ADAS software was developed in-house. The software is an end-end based AI model (no rules based driving) and uses the DeepSeek model as part of its AI architecture. All new BYD vehicles have the hardware installed, so the software is a free OTA update. One of the key goals of this software release was to reduce the number of false positives of the previous systems. BYD also claims to have China's first L3 test license but is in a race with Xpeng and Li Auto to be the first to roll this out in China. As BYD expands to Europe and other markets, some of these features are also becoming available outside of China. The cost, capability and reliability of L2+ and L3 ADAS systems is going to become an increasingly important sales differentiator.

ADAS/AD APPLICATIONS - BUSINESS NEWSBITES

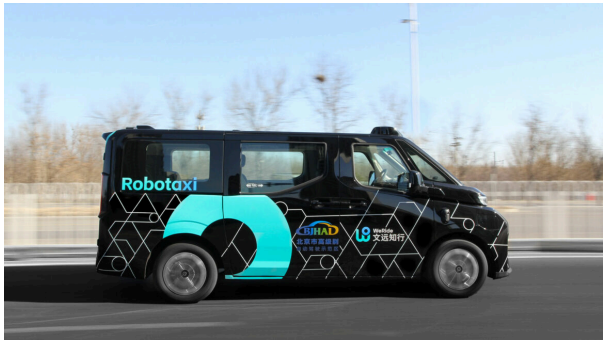
ADAS/AD Business and Applications – News Bites

Renesas and Nullmax Partnership
Renesas and Nulllmax announced integration of Nullmax's AI perception stack on Renesas' R-Card V4 and X5 series chips. Nullmax has focused on a vision only end-end AI approach for autonomous driving. The Nullmax CEO came out of Tesla's autopilot team and has worked with at least one of China's top OEMs. The Renesas X5 SoC is based on 3nm chiplets with up to 32 ARM cores and 400TOPs of AI performance and can compete with the lower end of the Qualcomm and Nvidia offerings today. Honda announced a 2000 TOPS development with Renesas at CES.

Technavio forecasts automotive technology market will grow $263B between 2025 and 2029
The growth is driven by ADAS and AV adoption, including technologies such as compute, displays and sensors. ADAS penetration in China already exceeded 35% in 2024 and is projected to reach 95% by 2030.

Lyft to roll out Mobileye powered robotaxis by 2026

Lyft announced that it is working with Mobileye to launch robotaxis in Dallas in 2026. Marubeni, a Japanese conglomerate with experience managing fleets, will own and finance the Mobileye-equipped vehicles that will show up on the Lyft app. This is another good win for Mobileye and a key milestone in the race to roll out robotaxi services across the US.



WeRide gets approval to launch Robotaxi service in Beijing

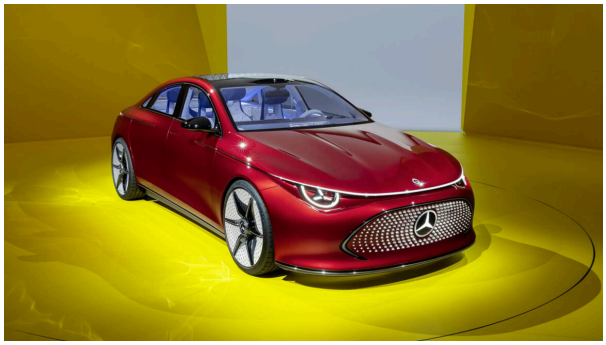
WeRide received approval to launch its GXR paid driverless ride-haling services in Bejing and is WeRide's second commercial launch, following Abu Dhabi with Uber last December. The service is allowed to run on certain highways, including the expressway to the airport.

Kia launches Syros SUV in India with 18% ADAS Adoption

Kia launched its small Syros SUV in India and states that 18% of "bookings" included the ADAS package, which costs about an additional $1,000. This represents about ½ of the ADAS adoption rate in China but shows that L2 technology is also coming to other markets.

Stellantis Previews AutoDrive

Stellantis has previewed its hands-free highway driving system, named STLA AutoDrive that allows hands-off driving on mapped highways, similar to GM's Super Cruise. It also allows L3 driving under certain conditions (up to 60km/h). Stellantis has still not announced which vehicles will first get this feature, but the press release pictures suggest the Jeep Wagoneer EV may be among the first. The system appears to be camera/radar based and probably using Qualcomm's Snapdragon processors. Stellantis had acquired aiMotive in 2022 for perception and Qualcomm has an L3 software stack based on the Veoneer/Arriver work, although it's not clear how much of that is used by Stellantis in this system. Stellantis has been a little behind GM and Ford with its L2+ system but looks to be catching up now.



Daimler Previews Level 2++ Driving Features on the new CLA

Daimler is rolling out a new set of L2++ driving features on the 2025 CLA, starting in China. The term L2++ is used for a set of enhanced urban assistance functions. The driver must still keep their hand on the wheel and monitor traffic, but the car handles steering, braking and accelerating. It helps the driver navigate busy streets in the world's biggest cities and is tailormade for local conditions.

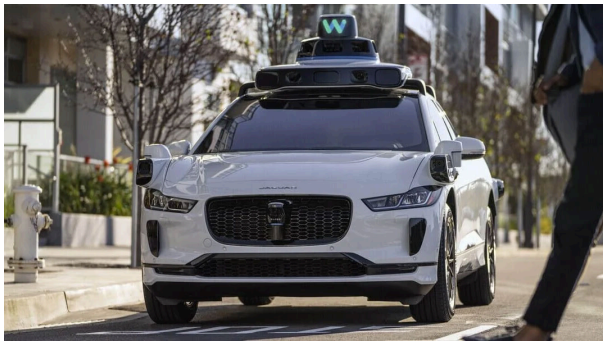
Cooperative steering is unique to Mercedes-Benz and means that the driver can always intuitively adjust the position of the vehicle without disengaging the system. Mercedes-Benz will be the first international OEM to offer L2++ starting in China in 2025.

Geely Launches G-Pilot ADAS Suite

Geely's new suite of intelligent driving functions will lunch on its Galaxy line of EVs and includes NOA and Park Assist. The cars will be able to do "door-door" autopilot. The G-Pilot system is available at 5 levels of capability, starting with a 100 TOPS solution and going up to dual Nvidia Thor U chips (2000 TOPS) for a L3 capable system. Geely has established a supercomputing center with 10,000 GPUs and has developed a proprietary LLM, which has since been integrated with DeepSeek's model and is used for scenario comprehension and decision optimization. Geely has more than 7 million L2 equipped vehicles on the road and can collect large amounts of data from them for training.

Xiaomi EV Hyper Autonomous Driving requires User Training

Xiaomi, the Chinese mobile phone company, has announced the full rollout of its end-to-end all-scenario AD feature, which enables seamless integration from departure to automated parking at the destination. Interestingly, their press release states that users have to complete 1000km of driving before the system can be fully activated and parking lot rules have to be learned before the automated parking can be used. We have seen a number of China systems require "user training" before operating autonomously, which seems to reduce AI model sizes and hardware requirements.



Uber is partnering with Waymo in Austin TX

Uber users can now select a Waymo car in Austin TX. They are also working on rolling out this option in Atlanta. Uber is used for roughly 28M trips per day, which far exceeds Waymo's app users, so this sort of partnership can be beneficial to both companies as robotaxis scale out. At launch there is no additional cost versus a standard Uber ride and you won't have to tip the driver!

Wayve announces new AI Hub in Germany

Wayve has announced a new development and test hub near Stuttgart, following a $1B series C funding round. Germnay allows Wayve to train its ADAS systems on German specific driving conditions, including high-speed autobahns.

May Mobility starts driverless rides in GA

May Mobility is another US based robotaxi service, operating driverless vehicles in Arizona, Michigan and now Peachtree Corners, GA. The vans operate along pre-planned routes, between hotels, retail, offices and other city landmarks. Rides can be booked through May's own app. May is focused on working with transit agencies, cities and similar organizations to bring AV capability to life. May is using Nvidia DRIVE hardware in its vehicles and has used lidar from companies including Ouster and Aeva along with its proprietary software.

WeRide introduces new Delivery Robovan

WeRide has introduced the Robovan W5, a Level 4 autonomous delivery vehicle designed to revolutionize logistics. This next-generation unmanned solution integrates WeRide's self-driving technology, enabling 24/7 operations in all weather conditions. The van has a 220km range and a 360 degree perception system based on a modular sensor suite of cameras, radars and lidar and an end-end AI model. WeRide had 10,000 indication orders from an express delivery company in China for its previous generation Van based on a Transit like vehicle and it will be interesting to see how demand grows for these custom platforms.

Kodiak Robotics now commercially driving

Kodiak has been working with Atlas Energy since 2024 for off-road driverless truck testing. They recently announced that the first 100 commercial delivery loads (of proppant) have been completed with Atlas owned trucks and the Kodiak Driver self-driving system. Atlas will now be able to expand commercial driverless operation in Texas and New Mexico. This is an important step to expanding the “safety case” to highway operation. The trucks include Kodiak’s “SensorPods™”, which are pre-calibrated modular units that house all the sensors for autonomous driving, that allow for faster and easier repairs. The previous generation trucks had 18 sensors, including 10 cameras, 4 ZF Radars, two Hesai scanning LiDARs, 2 Luminar Iris LiDARS and used Ambarella CV2 SoCs for camera data processing. The 6th generation truck adds two additional cameras and radars.

Waabi Partners with Volvo on Autonomous Trucks

Waabi, a Canadian software company founded by Uber ATG’s former chief scientist, and Volvo Autonomous Solutions (VAS) have partnered to develop and deploy autonomous trucks. The partnership combines Waabi's AI technology with Volvo's expertise in safety and automation. Waabi's virtual driver system, Waabi Driver, will be integrated into Volvo's VNL Autonomous truck. The VNL Autonomous will be manufactured at Volvo's New River Valley assembly plant in Virginia. Commercial pilots for the VNL Autonomous are scheduled to begin in Texas in 2025. There are a number of autonomous truck trials coming to Texas in 2025, including Aurora, Kodiak, Plus Torc and TxDOT and this partnership also aims to accelerate the rollout of self-driving trucks in the United States. Commercialization of these services is currently expected to start in 2027.