Canadian Automated Vehicle Initiative

CAV Update April 2025

From the Editors

In the March 2025 issue of CAV Update, we reviewed CAVI's first 12 months and the many things that we accomplished. If you missed it, you can download it from here.

Looking ahead to the next 12 months, we are accelerating into the future with exciting new initiatives:

- Developing a comprehensive, national CAV strategy with many stakeholder consultation sessions that will provide inputs
- Hosting workshops and fireside chats at major industry events
- Expanding our ecosystem directory to connect more players in the CAV space
- Strengthening government partnerships and deepening engagement with provincial stakeholders

The development of a national CAV strategy will involve multiple workshops with stakeholders across Canada to gather a wide range of perspectives, including regional interests and the many, varied sectors in the CAV ecosystem.

We are also in early-stage planning for an in-person event in Toronto after Thanksgiving. We look forward to meeting many of you in person. If you would like to assist in organizing the event, please reply to Barrie Kirk.

Finally, we welcome two new members to CAVI's Board of Directors:

- Marie-France Laurin, with MFL Consulting, is well-known in both the Canadian and international CAV ecosystems and in Quebec. We welcome her expertise in moving CAVI forward.
- David Demers is President of CNIB Access Labs. We look forward to David's guidance in helping CAVI and CNIB help Canadians who are blind or have low vision benefit from the increased mobility and independence that will be possible with CAVs.

Canadian CAV News

In March 2025, a major report was published by the **Ontario Vehicle Innovation Network** (OVIN) and its collaborators. The 89-page report is titled *Driving Innovation: Ontario's Automotive and Mobility Startup Ecosystem*. The report is a valuable guide for startups working in automotive related products and technologies. It describes in detail the landscape that startups need to navigate to develop their products and technologies, and to bring them to the market. This includes finding the right partners in industry, government, academia, incubators, accelerators, and others. The all-important funding mechanisms for startups is also explained. The main fields of innovation where startups can get involved include automated driving, artificial intelligence, electrification, Vehicle-to-Everything connectivity, Internet-of-Things (IoT) and Mobility-as-a-Service are all explored. The report can be viewed/downloaded at this link.

Several recent articles reinforce the CAVI forecast that freight, logistics and service applications will drive the adoption of CAVs for the rest of this decade, rather than passenger applications:

Raghavender Sahdev, NuPort Robotics

- "Self-driving vehicles will likely arrive in Canada first as commercial and industrial vehicles, not passenger cars*"* says an article by **Steve Mertl** in **Automotive News Canada**. The full article is here -- but it is behind a paywall. Barrie Kirk was pleased to contribute to this article.
- "Autonomy continues to be one of the most transformative forces reshaping the off-highway vehicle landscape" says the promo for the Off-Highway Evolution Summit**. "**Autonomy takes center stage as experts explore how automation is driving next-generation capabilities in agriculture, mining, construction, and beyond."
- "Canada moving to the forefront of driverless trucking, with one autonomous rig already rolling" is the title of a recent article in the **National Post** that you can view here.

The reasons for this trend are solid business cases and generally easier safety issues.

On April 3, 2025, an article titled *Right-Sizing Robotaxi Fleets, Urban Freight, and Two Collapses: Antitrust and Tesla's Brand* was published by Andrew Miller of Toronto-based **Paladin Consulting**. The article covers four topics. The first article on right-sizing a robotaxi fleet examines the delicate balance robotaxi companies need to take into account in determining the size of their fleet. Demand for taxi rides is not uniform throughout the day. Peak demand normally occurs during morning and evening commute and after major special events such as concerts or major league hockey games. At present, robotaxis are quite expensive due to their many sensors, drive-by-wire systems for computer control of steering, braking, acceleration and other control functions. Too large a fleet of these expensive vehicles will likely sit idle during off-peak times and earn no revenue for the company. Conversely, too small a fleet will not satisfy demand during peak periods and not maximize revenue. Hence, careful calculations are needed to determine the optimal fleet size. More details are at this link.

Staying with robotaxis and **Andrew Miller**, a previous article by him in *Changing Lanes* published on March 13, 2025 takes a deep dive into which company has a better chance of dominating the robotaxi business. He writes a critique on an article concerning a contest between Waymo and Tesla. The original article titled *Robotaxis Are Here* by **Tomas Pueyo** was published on March 11, 2025 on his site called *Uncharted Territories*. Andrew dissects Tomas's article and concludes that Waymo is more likely to win the robotaxi race than Tesla. Andrew's analysis can be viewed at this link. Tomas Pueyo's article can be viewed at this link.

Toronto-based AV developer **Waabi** is a leader in using advanced simulation in its development efforts. Accurate and realistic simulation of AVs is far more cost effective than deploying real test vehicles on roads for testing and data collection. In another advance, Waabi claims that its *Waabi World* neural simulator is 99.7% as realistic as the real world. In an article on its website, Waabi describes how this high degree of realism has been achieved. The key is the incorporation of *digital twin* technology in the simulation process. A very high-fidelity digital twin of a driving scenario is created by capturing vehicles, pedestrians, cyclists, animals, environmental conditions such as weather and illumination, infrastructure such as cones and traffic lights, and even subtle variations in road surface characteristics such as ice. This is then used to *seed* the Waabi neural simulator. More details are at Waabi's site at this link.

A Waterloo-based startup called **Real Life Robotics** has developed a four-wheeled delivery robot and a four-legged robotic dog capable of climbing the stairs. The delivery robot known as *BUBS* is equipped with mobile payment terminals that enable mobile vending in addition to the more usual tasks of food and goods delivery. Other applications cited by the company include transporting medical supplies, deliveries in industrial facilities, and in healthcare environments. The robotic dog called *Moose* has potential applications in power plants, oil & gas facilities, security patrol, and digital-twin mapping. The company's website has videos showing its products in action. More information is at this link.

Kitchner-based **Clear Path Robotics** (CPR) is a maker of unmanned ground vehicles, and robotic machinery for indoor and outdoor use. It was acquired by the U.S. firm **Rockwell Automation** in 2022 for a reported US$600 million. Earlier this year, CPR announced the winners of its 2024 *PartnerBot* Grant Program. This program started in 2012 and is intended to kick-start innovative robotics projects that might be useful to the company's own work. The company awards equipment and discounted prices worth up to $100,000 to selected projects. The 2024 awardees implemented projects in wildfire and forestry protection, sustainable farming and agronomy, lunar space exploration, and AI-driven autonomous navigation. More information about the 2024 prize winners and their projects at the Clear Path Robotics site are at this link.

International CAV News

Back in 2014, **Waymo** developed its own self-driving car with no steering wheel, brake or gas pedals. It was called the *Firefly*. Waymo retired *Firefly* in 2017 and partnered with carmakers such as Chrysler and Jaguar for the next generations of its self-driving cars. Chrysler and Jaguar vehicles were mass-produced vehicles with conventional controls such a steering wheel, brakes, etc., and fitted with Waymo's sensors and self-drive technology. In its latest iteration, Waymo has partnered with the Chinese firm **Zeekr** to create another autonomous vehicle with no conventional controls. The vehicle is known as the *Zeekr RT*. It was designed and developed at Zeekr's R&D facility, CEVT (*China Europe Vehicle Technology Centre*) in Gothenburg, Sweden. Based on Zeekr's *Sustainable Experience Architecture* (SEA) platform, it is

equipped with 13 cameras, four lidar units, six radar sensors, and external audio receivers. It is intended to be a mass-produced vehicle made to Waymo's specifications. At present it is undergoing tests in the United States. More information and a short video are at this link.

On March 11, 2025, **The Washington Post** published an article titled *Robotaxis without a brake pedal or mirrors? Not so fast, feds say*. It describes the tussle between Amazon-owned **Zoox** and the **National Highway Traffic Safety Administration** (NHTSA) over Zoox's alleged violation of existing vehicle safety rules. Zoox autonomous vehicles are designed with no conventional controls such as a steering wheel, brake or accelerator pedals, and other controls installed in a human-driven vehicle. In the United States, vehicle manufacturers are allowed to self-certify the safety of their vehicles. This is what Zoox did in 2022 by attaching a label to its vehicle, asserting that it complied with the rules. Inspectors from NHTSA examined a Zoox vehicle and cited it for non-compliance in eight areas. These included the vehicle having no side mirrors, a brake pedal, windshield wipers, and defoggers. The investigators also noted that the vehicles' windshields were not made with the regulation type of glass. Strangely, they did not take an issue with the Zoox vehicle having no steering wheel. More information is at this link.

On March 15, 2025, the **Economist** magazine published an article titled *China is leading the rollout of self-driving technology*. The Economist reporter had visited China, interviewed a few top executives, and had rides in Chinese-made vehicles equipped with self-drive systems. According to this report, China is the undisputed world leader when it comes to cars with Level 2 (L2) vehicle automation. An L2-capable vehicle is able to steer, accelerate and brake on its own. However, the human driver needs to be fully alert with eyes on the road. Chinese carmakers are now including L2 functionality in even their cheapest models, those costing under US$10,000. China being a very competitive market, some car companies are now selling L2+ and L2.9 models with enhanced L2 capabilities such as self-parking. China is fast moving to Level 3 (L3) technology where drivers can take their hands off the steering wheel and eyes off the road. However, they need to be ready to take over if the car requests. The Economist article can be viewed/downloaded at this link.

The **National Electrical Manufacturers Association** (NEMA) is a major American standards organization for numerous electrical devices and systems. This includes the transportation sector. On January 7, 2025, NEMA published a new standard called Connected *Vehicle Infrastructure: Roadside Equipment Standard;* it is designated it as

NEMA TS 40010-2024. The main purpose of NEMA standards is the interoperability of equipment manufactured by different companies. The new connected vehicle standard is intended for enhanced wireless communication for safety messages (e.g., running a red light), applications (V2V, V2I, etc.), and cybersecurity. The standard will provide better detection and warning systems for drivers when vulnerable road users such as pedestrians are present, reduce accidents and traffic congestion, and decrease carbon emission. More details are at NEMA's site at this link. The TS 40010-2024 standard is available for purchase from NEMA's online store for US$219.

And finally, a recent article in **The San Francisco Standard** titled *$14,000 on Waymos?! Meet SF's biggest robotaxi addicts*. It describes how a number of San Franciscans spend big money on Waymo robotaxi services. One such customer has spent about US$14,000 on Waymo's driverless taxis in a little over two years. Some others use the service almost every day to commute from their residence to their place of work or to shop for groceries. The people interviewed gave different reasons for being such loyal users of robotaxis. For example, one rider says he likes robotaxis because he does not have to engage in small talk with the driver. Another says that it avoids riding with a ride hail driver who might be drunk or tired. According to the article, at present, Waymo operates about 300 robotaxis and commands 22% of the ride hailing market in San Francisco. The SF Standard article can be viewed at this link.

In another Waymo/San Francisco development, the **City of San Francisco** cited Waymo vehicles 589 times in 2024 for traffic violations. This cost Waymo $65,065 in penalties. The violations ranged from blocking street traffic to parking in prohibited areas such as commercial loading zones.

CAVI Speakers' Bureau

CAVI provides speakers for many different types of events across Canada, the US and overseas. On the one hand, our keynotes and presentations have core messaging on the status of CAVs, their deployment scenarios, and the impact on business plans, government regulations, and almost all aspects of society. On the other hand, each presentation is customized for the audience and the time available.

To inquire about a speaker for your event, please write to speakers@cavi-icva.ca

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Upcoming CAV-Related Events

May 20-22, 2025	ADAS and Autonomous Vehicle Technology Expo Europe, Messe Stuttgart, Germany
May 21-23, 2025	ITS Canada 2025 Conference & Expo, Ottawa, ON
June 3-5,2025	AutoTech 2025, Novi MI
June 9-11, 2025	CCMTA Annual Meeting, Regina SK
June 11-12, 2025	iVT Expo (Industrial Vehicle Technology), Köln Messe, Germany
June 15-18, 2025	UITP Summit, Hamburg, Germany
June 24-26, 2025	Autonomous Ship Conference, Amsterdam, Netherlands (call for speakers)
June 25-26, 2025	Last Mile Delivery Conference & Expo, Las Vegas
August 27-28, 2025	ADAS & Autonomous Vehicle Technology Summit North America, San Jose CA
October 5-8, 2025	TAC Conference & Exhibition, Quebec City

About CAV Update

CAV Update is a free, monthly summary of news and analysis in the world of connected and automated vehicles, and their impact on the private sector, government, and society.

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The Canadian Automated Vehicle Initiative (CAVI) is an association for all stakeholders in industry, government and academia involved in any aspect of the ever-increasing automated vehicles ecosystem.

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