

From the Editors

We are giving readers of *CAV Update* a preview of a new association in the Canadian CAV ecosystem. The **Canadian Automated Vehicle Initiative** (CAVI) will be officially launched in March 2024.


With a commitment to innovation, collaboration, and sustainability, CAVI aims to be a forum and a voice for the CAV ecosystem. It will accelerate the development and adoption of automated vehicles of all kinds across the country. At a national meeting in January, hosted by CAVCOE and involving government, industry leaders, and academia, there was a clear consensus in favour of this initiative.

CAVI's mission is to position Canada at the forefront of the global autonomous vehicle revolution, fostering synergies, economic growth, and technological advancement.

CAVI's members will include the federal, provincial, and municipal levels of government, the private sector, academia, other associations, and consultants. The scope of the CAV industry sectors will include cars, public transit, freight, service vehicles, aviation, mining, and farming.

In more detail, CAVI has eleven primary project objectives that all contribute to increased CAV deployment and increased safety on Canada's roads:

- To develop a national CAV strategy;
- To facilitate replacing silos with synergies that bring streams together;
- To be a champion for the Canadian CAV ecosystem, both nationally and internationally;
- To not duplicate work being performed by other organizations;
- To conduct and publish research studies of general interest in the CAV ecosystem;
- To be a public voice and, while mindful of government policy, say and do things that governments cannot always do;
- To provide opportunities for learning and networking through online and face-to-face events, such as webinars, conferences, and a summit;
- To take over from CAVCOE the preparation and publishing of *CAV Update*;
- To expand public education initiatives;
- To be a thought-leader and to frame the narrative and be a public voice in a way that government cannot be;
- To be a very outward-looking organization, both nationally and internationally.



Currently, the CAVI team is working on the many major and minor aspects of launching this new association, including the all-important task of obtaining the required funding.

To be on the CAVI mailing list, please write to cavi@cavcoe.com

Canadian CAV News

A recent opinion piece in the **Globe & Mail** by Prof. Peter Norton (University of Virginia) takes aim at the hype by autonomous vehicle developers who advance the idea that AVs are the magic cure for traffic deaths and injuries. The opinion piece is titled *Self-driving cars are part of an American tradition: letting private companies sell products to fix problems*. It makes comparisons with the practices of American pharmaceutical companies where expensive drugs and treatments are marketed directly to consumers, a practice that is opposed by the **American Medical Association**. Prof. Norton takes issue with companies like **Waymo** and **Cruise** taking full-page ads in leading newspapers to assure the public and the policymakers about the safety of their robotaxis. He also points out that on a per-capita basis, the rate of fatalities caused by cars in the U.S. is twice as high as those in Canada. The opinion piece can be viewed at [this link](#).



On February 2, 2024, The **Calgary Herald** published an article in which the CEO of Calgary-based **Imperial Oil** spoke about the record level of oil production at its Kearl oilsands facility in northern Alberta. In fact, production level is at the highest it has been for the past 30 years. Imperial Oil transitioned all of its human-driven heavy haul trucks to autonomous technology last fall. The CEO stated that there is no doubt that the autonomous haul fleet has contributed materially to Imperial's ability to achieve these record volumes, as well as a significant improvement in operating costs. He added that autonomous trucks are safer and more efficient than a human-operated fleet. Another major oilsands oil producer has also adopted autonomous technology for its mining operations in Fort McMurray, Alberta. More information is at the Calgary Herald's site at this [link](#).



In the past, we have highlighted the work done by the Toronto-based **Urban Robotics Foundation** (URF) on behalf of the **International Standards Organization** (ISO) in the area of *Public-area Mobile Robots*

(PMRs). URF's Executive Director – Bern Grush, is the global lead for drafting technical documents for ISO's PMR project. To this end, URF anticipates publishing this open, international standard in stages starting in 2024 and finishing by 2026. As part of this effort, Bern has had many discussions with universities worldwide; including the University of Waterloo. Discussions have been around interests in robot-human communication, infrastructure readiness, municipal bylaws, multi-agent optimization, and other topics. More information is at URF's site at [this link](#).





The Chinese company **EHang** is a leading developer of autonomous passenger drones. It appears that a Richmond Hill, Ontario company called **Aero Future Canada Inc.** (AF-C) has made an agreement with EHang to open up the Canadian market to its products. Recent media reports indicate that AF-C has sent a letter to the City of Dawson Creek in B.C. proposing to test autonomous Chinese drones in northern B.C. Part of the letter says that AF-C has partnered with EHang to distribute their line of *Passenger Autonomous Aerial Vehicles* (AAVs) drones in Canada. It adds that these vehicles have been designed and built with a number of applications in mind, including the transportation of food and other goods, urban and forest firefighting capabilities and medical emergency response capabilities. More details are at [this link](#).




Staying with drones, Vaughan, Ontario-based **Drone Delivery Canada** (DDC) and **Edmonton International Airport** (YEG) started collaborating in 2019. Since then, DDC has provided 2,400 flights with a total flight distance of over 6,500 Km to several nearby businesses. On January 18, 2024, DDC and YEG announced a new partnership with the **Montana First Nation** and their medical facility located in the nearby city of Leduc. This clinic provides healthcare services to indigenous and non-indigenous Canadians. DDC will deploy its drones to provide rapid delivery services to this facility from its base at YEG. The partnership will run for 12-months at a contract value of \$417,000. More information is on DDC's site at this [link](#).



International CAV News

On January 24, 2024, trucking site **freightwaves.com** published an article titled *Trucks are getting smarter, and truck drivers aren't happy about it*. The article takes aim at the *Advanced Driver-Assistant Systems* (ADAS) that are increasingly being installed in many vehicles, including heavy transport trucks. Drivers operating trucks equipped with ADAS report that the onboard sensors, software and controls on these trucks often misread the situation that the driver sees, resulting in unnecessary warnings or interventions by the ADAS system. For example, the lane-keeping system can mistake tire tracks or cracks in the pavement as lane marking or perceive a trash can on the side of the road as another vehicle. According to one driver, the technology works best in an environment where everything is rational, which is probably the case in a computer program or even in a computer simulation. Unfortunately, in the real-world operational environment decisions are made and actions are taken by humans, and humans very often make irrational decisions and take irrational actions. The article can be viewed at [this link](#).





A recent article in **IEEE Spectrum** titled *The Trolley Problem” Doesn’t Work for Self-Driving Cars* examines this well-known and popular ethical concept in the light of new research conducted by researchers at the **North Carolina State University**. The *Trolley Problem* was developed by British philosopher Phillipa Foot in 1967 as a way to consider tough ethical choices in many fields. It was taken up early in the debate over how to design autonomous vehicles. The new research takes issue with the fact that decisions in the case of a trolley situation are essentially a binary choice, i.e. take this fork in the road or the other. It is proposed that a better ethical system is one that avoids human biases and limitations due to reaction time, social background, and cognitive laziness, while at the same time aligning with human common sense and moral intuition. Furthermore, the researchers have developed a model based on *Agent-Deed-Consequences* (ADC) of moral judgment as a moral-psychological framework which they believe is superior to simple binary decision-making. The IEEE Spectrum article can be viewed at [this link](#). The full paper titled *Moral judgment in realistic traffic scenarios: moving beyond the trolley paradigm for ethics of autonomous vehicles* can be viewed/downloaded at [this link](#).




The U.S. military kickstarted the autonomous vehicle race in 2004 with the first *DARPA Grand Challenge*. Fast forward 20-years and the U.S. Army now has a pair of Ford F-150 upfitted with **Kodiak Robotics’** autonomous system - the *KodiakDriver*, and contains both the autonomy hardware and software required to operate a military ground vehicle. Kodiak is best known for developing driverless transport trucks. However, according to Kodiak, the core technologies can be installed on many different vehicles including military vehicles with their own military specifications such as degraded GPS reception, as well as off-road variables such as rocks, dust, mud and water. The F-150s can also provide the Army with the ability to remotely operate them when necessary. Kodiak has attracted about US\$167 million in investments to date. More information is at [this link](#).



A recent report by the **San Francisco Examiner** titled *California hasn't tracked AV crash liability data for years* alleges that the **California Department of Motor Vehicles** (DMV) has not published any *at-fault* data since late 2019 for autonomous vehicles operating in the State of California. The *at-fault* information simply indicates which party was at fault when a collision happens between an AV and a human-driven vehicle. The DMV published this information from 2014 to 2019 and then



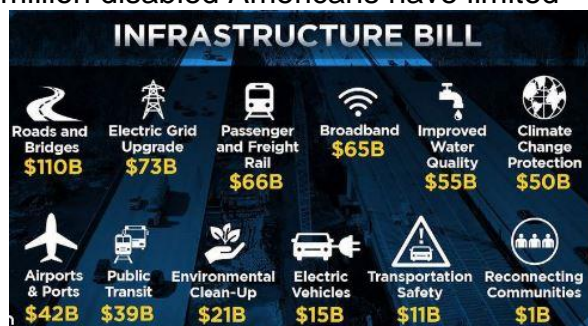


stopped reporting it from 2020 till now. Based on the analysis by the Examiner, the human-driven vehicle was at fault 82% of the time for the 2014-2019 period. Since 2019, the number of AVs in California and particularly San Francisco has gone up considerably. Yet, no *at-fault* data is available from the DMV for the past 4-years. The Examiner contacted the DMV for an explanation but did not receive a definitive response from it. The DMV stated that the details of how a crash occurs are recorded, but the determination of who is at fault is made by the Police and/or the insurance companies. More information is on the Examiner's site at [this link](#).

Bracewell LLP is an international law firm based in Houston, Texas. The firm recently wrote an article for **The National Law Review** titled *Driverless in Dubai: Autonomous Vehicle Regulation Advances in the United Arab Emirates*. The article outlines rules and regulations for the introduction of autonomous vehicles into the Emirate of Dubai, one the seven emirates that compose the country of United Arab Emirates. The regulations firmly put Dubai's **Road Transport Authority** (RTA) in charge of licensing and regulating future introduction and deployment of AVs in Dubai. Of note are responsibilities relating to not only the operator of an autonomous vehicle, but also passengers of such vehicles, who must also comply with certain rules when being driven by an autonomous vehicle. The article also touches upon an agreement between RTA and **Cruise** for starting robotaxi services in Dubai using Cruise's Chevrolet Bolt robotaxis. According to this agreement, Cruise will have the exclusive rights for robotaxi operations in Dubai till 2029. More information is at [this link](#).

THE NATIONAL LAW REVIEW

One of the major selling points of autonomous vehicles has been its potential to help people with disabilities. It is estimated that 25 million disabled Americans have limited travel options. In theory, AVs enable the disabled to have access to transportation for everyday activities such as shopping, medical appointment, seeing friend and families, etc. It can also mitigate to some degree the epidemic of loneliness among the disabled, those who don't own a personal vehicle, cannot drive or will not drive by choice. An AV demonstration



project in the town of Grand Rapids in northern Minnesota takes aim squarely at all of these issues. With US\$13 million funding from the U.S. federal government as part of its **2021 Infrastructure Bill**, and in collaboration with the **Minnesota Department of Transportation, May Mobility** and other stakeholders, a number of autonomous Toyota minivans have been deployed in Grand Rapids which provide a free transportation service for the disabled and able-bodied people along a 35 mile (56 Km) route with 71 stops. So far, the project appears to be a success, having given 5,000 rides since 2022 without any accidents. The project is slated to continue till 2027. More information is [this link](#).

And finally, a failed Canadian mass transit concept known as **GO-Urban** from the 1970s seems to have been dusted off by a British company called **Urban.MASS** Limited and proposed to the Emirate of Dubai as a relatively low cost mass transit system.

The system dubbed as *FLOC/DUO RAIL* is designed as an



autonomous high-speed pods running on elevated tracks above the ground. The backers of this system claim that the high-speed elevated pods cost less than 20 percent of the cost of a conventional subway system. They also state that the system is highly scalable; such that it could serve cities with populations of 200,000 to 10 million. More information is at [this link](#). A short YouTube video of the conceptual system in action can be viewed at [this link](#).

CAVCOE Speakers' Bureau

CAVCOE 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 enquire about a speaker for your event, please write to speakers@cavcoe.com

Upcoming CAV-Related Events

March 5-6, 2024	Autonomous Vehicles and Public Transportation , San Francisco
March 20-21, 2024	Connected Places Summit , London UK
March 26, 2024	Automotive Forum , New York City
March 26-27, 2024	VTM Vehicle & Transportation Innovation Meetings , Torino, Italy
April 17-18, 2024	DiscoveryX , organized by the Ontario Centre of Innovation, Toronto, ON
June 5-6, 2024	AutoTech Detroit , Suburban Collection Showplace, Novi MI
June 27-28, 2024	Last Mile Delivery Conference & Expo , Las Vegas NV



August 28-29, 2024	ADAS & Autonomous Vehicle Technology Expo , San Jose, CA
September 22-25, 2024	2024 TAC Conference & Exhibition , Vancouver, B.C.
October 22-24, 2024	Automotive Testing Expo , Novi, MI
November 5-7, 2024	2024 Aerial Evolution Canada Conference & Exhibition , Ottawa ON

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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CAVCOE (formerly the Canadian Automated Vehicles Centre of Excellence) advises the public and private sectors on planning for the arrival of self-driving vehicles.

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