

National crash rate for conventional vehicles higher than crash rate of self-driving cars, report shows

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A report commissioned by Google, based on research conducted at the Virginia Tech Transportation Institute, compares national crash rates to data from Google's Self-Driving Car program. This photo, courtesy of Google, is a prototype vehicle being tested in Texas.

A new report, "Automated Vehicle Crash Rate Comparison Using Naturalistic Data," performed by the Virginia Tech Transportation

Institute and commissioned by Google, shows that the crash rates for self-driving cars are lower than the national crash rate of conventional cars.

In this first-of-its-kind study, published today on the Virginia Tech Transportation Institute website, results show that when data is adjusted for unreported [crashes](#) and take into account accident severity, the national [crash rate](#) for conventional vehicles is higher than the crash rate of self-driving cars.

Up until now, comparisons based on existing data have been incomplete as requirements in each state for police reported crashes differ, and the majority of severe crashes that go unreported. Meanwhile, self-driving cars are required to report every crash, regardless of severity.

The report examines national crash data and data from naturalistic driving studies that closely monitors the on-road experience of 3,300 vehicles driving more than 34 million vehicle miles, to better estimate existing crash rates, and then compares the results to data from Google's Self-Driving Car program.

Key findings include:

- Adjusted for unreported crashes and accident severity (accidents that fall within the two highest severity levels), the national crash rate estimates of 4.2 crashes per million miles is higher than the crash rates for the Self-Driving Car operating in autonomous mode (3.2 per million miles).
- The crash rate of conventional vehicles at all levels of severity is higher than the self-driving [car](#) crash rates, according to analysis of the Second Strategic Highway Research Program (SHRP 2) Naturalistic Driving Study.
- Current data suggest that conventional vehicles may have higher rates of more severe crashes than self-driving cars, but given the

small overall number of crashes for the [self-driving car](#) at these levels, there is insufficient data to draw this conclusion with strong confidence.

- However, there is statistically-significant data that suggest less severe events may happen at significantly lower rates for self-driving cars than conventional vehicles.
- Additionally, when the Virginia Tech Transportation Institute, using methods developed for the Second Strategic Highway Research Program Naturalistic Driving Study, analyzed the Google Self-Driving Car events, none of the vehicles operating in autonomous mode were deemed at fault.
- As self-driving cars continue to be tested and increase their exposure, the uncertainty in their event rates will decrease. This is particularly appropriate to vehicles intended for lower-speed use where less-severe events are the most likely to be encountered by the newer generation of the Self-Driving Car fleet.

More information: Automated vehicle crash rate comparison using naturalistic data. www.vtti.vt.edu/featured/?p=422

Provided by Virginia Tech

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