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Rules Docket Clerk
U.S. Department of Transportation
1200 New Jersey Ave SE
Washington DC 20590

July 23rd, 2019

Dear Rules Docket Clerk:

The topic of safety of autonomous vehicles is complex. The U.S. is not the only country grappling with the impact of this emerging technology: There are currently numerous prototype testing activities worldwide, as depicted in Figure 1.

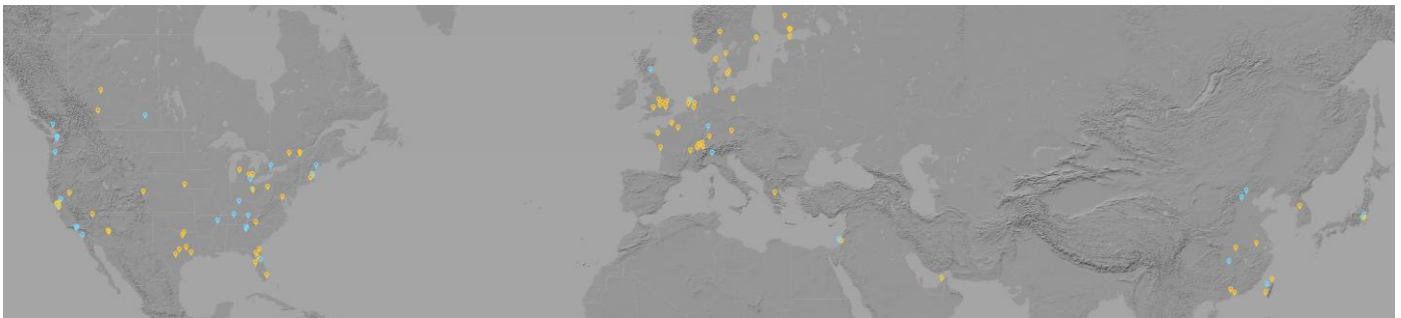


Figure 1: Map of World Wide Testing Activities

At MSC Software, we have been analyzing the industry developments carefully, to gain deeper understanding into the various aspects of the problem. An aspect of our analysis reviewed the scope of the safety challenge by reviewing the data published by the DOT. We reviewed the various disengagement reports available online, the significant testing activity in the San Francisco Bay Area, and the online reports documenting the numerous incidents, summarized on a map in Figure 2. We also reviewed the statistical analysis published by RAND Corp, as well as numerous industry publications and blogs.

Our key observation is that the ADS validation task must be approached as a multi-agent problem. Traditional safety standards such as FMVSS 1-series, and voluntary compliance to ISO-26262 are centered on the reliability of the vehicle. In contrast, the DOT pre-crash data clearly shows such a focus represents less than 1% of the scope, as depicted in Figure 3. The safety validation of ADS must address the remaining 99% of the scope.

Attached please find a detailed analysis on this topic. Whereas we do not have a prescribed solution, we hope to help with some additional insights. In particular, we observe that *the six approaches described in this ANPRM are not focused on the multi-agent problem, thereby falling short of validating the safety of an ADS driver.*

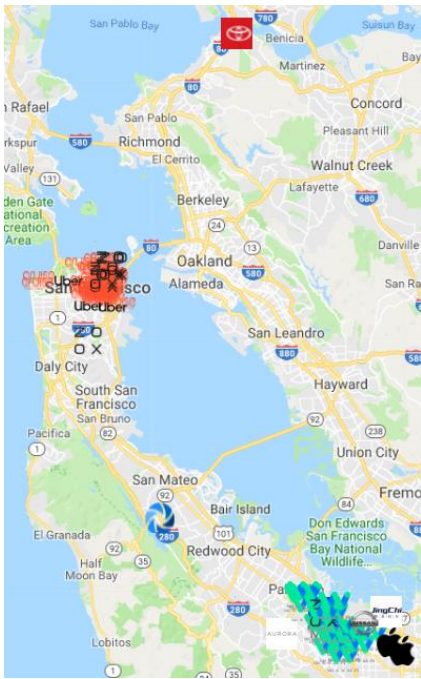


Figure 2: ADS Incidents in SF Bay Area

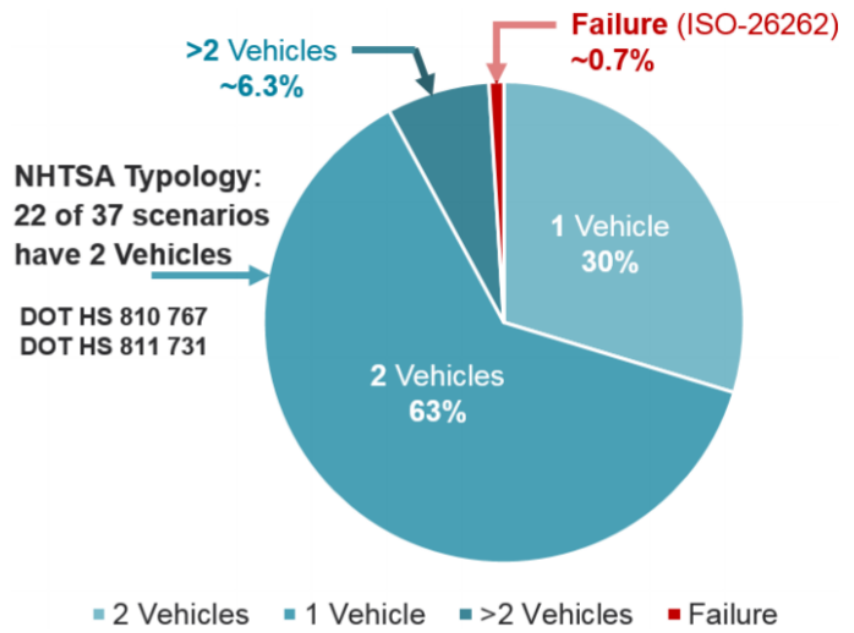


Figure 3: Distribution of Crashes per DOT reports

We respectfully request that you acknowledge the multi-agent aspect of the problem, and direct industry attention to that aspect.

Thank you for your consideration!

Sincerely,
 Edward Schwalb, Ph.D