**Introduction to Data Science**

**Exercise 10**

**Milan Sherman**

Topic: Self-driving cars

The current problem with self-driving cars is that the degree of required accuracy is quite high for such a complex and potentially dangerous activity. We know that many people die in car accidents every year, but we don’t know if fewer people will die with self-driving cars. Given the increase in fatal car accidents due to distracted driving (Covington, 2021), self-driving cars may actually be safer, as a self-driving car will never drive distracted (or intoxicated). On the other hand, the question of how reliable self-driving cars will be remains in question. In 2018 a pedestrian was hit and killed by an Uber self-driving car in Arizona due to a malfunction, even with a safety driver in the car (Piper, 2020).

Another issue is the willingness of the general public to accept the risks involved with self-driving cars. As a society we have come to accept the inherent risks in driving when other cars are driven by people; there seems to be greater concerns when those cars are driven by computers. Enough people have experienced a technology malfunction in their personal or professional lives that it could be a tough sell. While this is not necessarily a fair extrapolation since the criteria for hardware and software reliability will be much higher for self-driving cars than, say, for a Microsoft program on your laptop, the question of how reliable it will be remains.

In 2016, Business Insider predicted that 10 million self-driving cars would be on the road by 2020, which was clearly optimistic. I think two things are needed in order for self-driving cars to become an everyday reality on America’s roads: 1) a lot more training data and miles driven by self-driving cars, and a measured approach to rollout that will gain the trust of the general public who will share the road with self-driving cars. Human driving produces one fatal accident in every 100 million miles driven, while the leading self-driving car company recently reached 20 million miles driven overall (Piper, 2020). Clearly, a lot more training data and miles on the road are needed to get self-driving cars to the point that we *know* they are safe enough to trust.

However, the criteria for knowing that they are safe will likely be different for different people. Some will require much more evidence than others, and for some, no amount of evidence will be enough. Trust will take time, and incidents like the fatal Uber accident will set the industry back years. All the miles driven that I noted above need to be documented, and the driving records of self-driving cars need to be publicized. The media is much more likely to report accidents or fatalities, so companies in the self-driving car industry will need to work together to hold each other accountable and market milestones in self-driving car safety. Not everyone will need to be convinced, but we will need to reach a point of critical mass in terms of public trust and support. Ultimately, I think that self-driving cars are inevitable – it’s not a matter of if, but when.

References

Covington, T. (2021). Texting while Driving Statistics - Dangers of Distracted Driving by The Zebra. https://www.thezebra.com/resources/research/texting-and-driving-statistics/.

Piper, K. (2020, February 14). *It's 2020. Where are our self-driving cars?* Vox. https://www.vox.com/future-perfect/2020/2/14/21063487/self-driving-cars-autonomous-vehicles-waymo-cruise-uber.