

Distribution of Artificial Intelligence

There are a large number of issues that are present in the world of Artificial Intelligence, many of which have extensive moral and ethical considerations. However, many of these issues are about how the artificial intelligence should act, or be made, or what it should be used for. This paper will instead focus on the ethical implications of the distribution of the artificial intelligence.

Most highly powerful artificial intelligence software is currently created by corporations, that aim to use this software for their products. And because of this most of the artificial intelligence programs are not released to the public for use. However, there are many tools that provide frameworks that are made publicly available such as ¹ to name one. Even with such frameworks, almost all of the highly advanced neural networks are kept private within a company, and it is left on the communities to develop their own networks, which are most likely not on par with those developed by the original developers.

One major example of this is in relation to self-driving vehicles. Since this is one of the major current focuses of artificial intelligence, there are a large number of competing developers for creating the most suitable neural network for the job. To name a few there are Tesla, Waymo, Uber, Drive.ai, and the list continues. The point is of these major developers of self-driving technology, none of their software is publicly available. For now, the fact that all the software is private is considered acceptable, as most of the algorithms are still being developed and so are not to an acceptable standard.

However, it must be considered, should the software be made public? With the expansion of automobiles with self-driving, or some form of driving assistance, most if not all new vehicles have some form of artificial intelligence implemented

¹www.tensorflow.org

in it. However, each manufacturer is keeping their software private (to my knowledge). In practice, AI is intended to help humanity, and make life easier and safer. Thus when there is a fatal accident caused by a self-driving car ² it must be questioned whether the software between major manufacturers should be distributed, and thus each developer is able to collaboratively contribute to the software, in theory making it more robust and develop faster.

With some rough math that is at the end of the paper, the safety of each major self-driving software developer is compared. It can be concluded that from the rough calculations, that there is a wide range of experience in the different networks, and most of them are less experienced than that of human driving. However, in just the range of safety that is present in the different self-driving systems, there are extreme outliers. Uber's self-driving system, is currently the least safe of the development systems, and Tesla's is currently the safest.

With this variation between the different levels of safety for the different artificial intelligence implementations, the major developers should morally release their software. Taking the most recent fatal accident by Uber's vehicle into consideration. Could it have been avoided if the vehicle was running with Tesla's more experienced and safer AI, or if the two companies had collaborated on the software could the death be avoided? These two questions are impossible to know for certain. This is a critical question to be considered. Because one developer's software is substantially safer than another, it is ethically and morally acceptable to keep that software private, when releasing it could potentially save peoples lives?

If major manufacturers were to collaborate on one artificial-intelligence, then the development would move faster with more developers an more testing environments and this could potentially lead to a safer system as a whole, and

²www.theverge.com/2018/3/28/17174636/uber-self-driving-crash-fatal-arizona-update

save peoples lives.

Calculations

Humans

$$37,000 \frac{\text{death}}{\text{year}} \approx 101 \frac{\text{death}}{\text{day}}^3$$

$$245.5 \times 10^9 \frac{\text{miles}}{\text{month}} \approx 7.92 \times 10^9 \frac{\text{miles}}{\text{day}}^4$$

$$7.84 \times 10^7 \frac{\text{miles}}{\text{death}}$$

Tesla

$$\frac{2 \text{ deaths}}{4 \text{ years}} \approx 1.7 \times 10^{-3} \frac{\text{death}}{\text{day}}$$

$$\frac{300,000,000 \text{ miles}}{4 \text{ years}} \approx 2.05 \times 10^5 \frac{\text{miles}}{\text{day}}^5$$

$$1.5 \times 10^8 \frac{\text{miles}}{\text{death}}$$

Uber

$$\frac{2 \text{ deaths}}{3 \text{ years}} \approx 1.9 \times 10^{-3} \frac{\text{death}}{\text{day}}$$

$$\frac{2,000,000 \text{ miles}}{3 \text{ years}} \approx 1.98 \times 10^3 \frac{\text{miles}}{\text{day}}^6$$

$$1.4 \times 10^6 \frac{\text{miles}}{\text{death}}$$

³<http://asirt.org/initiatives/informing-road-users/road-safety-facts/road-crash-statistics>

⁴https://www.fhwa.dot.gov/policyinformation/travel_monitoring/18jantvt/

⁵<https://electrek.co/2016/11/13/tesla-autopilot-billion-miles-data-self-driving-program/>

⁶(<https://www.forbes.com/sites/bizcarson/2017/12/22/ubers-self-driving-cars-2-million-miles/#1a3b5507a4fe>)[<https://www.forbes.com/sites/bizcarson/2017/12/22/ubers-self-driving-cars-2-million-miles/#1a3b5507a4fe>]