The Ethical Dilemma of Self-Driving Cars

Warm up

- What do you know about self-driving cars?
- Why is the topic of self-driving cars is becoming so popular?
- Do you think in the near future, self-driving cars will become the new standard?
- Do you think that manually operating an automobile will be deemed illegal due to the potential danger it presents?
- Will self-driving cars have the ability to prioritize different peoples safety in the event of an unavoidable crash? (Ex. pregnant wife is in the passenger seat, does the car choose to keep the passenger safe over the driver?)
- How do you think self-driving cars will impact society? Take a look at the points below and discuss:

Traffic Accidents	Deaths Property damage	Energy Environment	Speeding Drunk driving	Truck drivers Taxi services

1.Match the vocabulary below to their correct meaning a-j:

1. Product liability laws	2. Negligent	3. Interpretability	4. Pitfall	5. Robust
6. Ceding control	7. Blame	8. Entail	9. Trade-off	10. Infancy

3	a) to give meaning and critical understanding to something.
10	b) to be very new and still developing or (different context) when someone is a baby
7	c) to say that (someone or something) is responsible for something that went wrong.
9	d) a situation in which you balance two opposing situations or qualities:
6	e) to give up power to someone else
1	f) the area of law where those who make products available to the public are held responsible for the injuries those products cause
8	g) to involve or imply
5	h) strong and healthy
4	i) an unsuspected danger.
2	j. failing to take proper care of something.

2.Label the comments on the following page with the correct questions from 1-3:

1. How much control should be given up to a machine?
2. What would happen in hackers took the wheel?
3. Who will be responsible for self-driving car crashes?

Who will be responsible for self-driving car crashes?

"Product liability laws hold car manufacturers, designers, and others in the chain of distribution responsible for defective systems and parts within a vehicle that end up causing harm to the consumer. Still, drivers could also be held responsible if their negligent actions somehow led the autonomous vehicle to crash. For example, if they were not properly maintaining the vehicle to make sure it was fit to be on the road. We are also likely to see situations where a car company and a driver share in the blame for a crash, with arguments arising over to what degree each party is responsible." – A.J Bruning

How much control should be given up to a machine?

"As well as deep learning networks may perform at driving 99.9% of the time, this lack of interpretability becomes a real concern on those rare occasions when an AV makes the wrong decision and causes an accident. In those situations, humans have no way to explain what went wrong and no way to troubleshoot the error. Using deep learning in AV decision making, then, entails ceding control and even understanding to the machine. Not everyone thinks this trade-off is worth it." – Forbes Magazine

What would happen in hackers took the wheel?

"Automakers have faced criticism from the computer security industry in recent years as vehicles become more electronically integrated and come equipped with wireless communications systems. Together, these features provide pathways for hackers to remotely access a vehicle and control its systems, potentially including steering and acceleration." – Left Lane

3.Read the ethical dilemma below and discuss the following questions your partner:

Let's say you are going down the highway in your self-driving car and you find yourself boxed in by a truck in the front and two motorists on either side. The motorist on the left is wearing a helmet, however, the motorist on the right isn't. Suddenly, a large heavy object falls off the truck in front of you and your car can't stop in time to avoid the collision.

- Should the car be programmed to swerve to crash into the motorist on the left or the right?

- If we have driverless cars on the road we would have to give programmers the power to at least pre-programme such decisions. Should programmers be given the opportunity to make such decisions if it means there will be less road accidents overall? Do you think it's a good trade-off?

4.Match the vocabulary on the right with their correct meaning on the left:

1. Swerve h
2. Deliberate f
3. Premeditated Homicide a
4. Manoeuvre b
5. Predict c
6. Determine g
7. Murky e
8. Novel idea d

a. Murder that was planned beforehand
b. To move skilfully and carefully
c. To say or estimate what will happen in the future
d. Something new and original
e. Dark and unclear
f. On purpose
g. To decide something based on evidence and facts
h. To change direction very quickly

[i]5.Watch the video *The Ethical Dilemma of Self-Driving Cars* and answer the following questions:

1. According to the video, what is the difference between a reaction and a decision ?

   00:56
   If we were driving that boxed in car in manual mode, whichever way we'd react would be understood as just that, a reaction, not a deliberate decision. It would be an instinctual panicked move with no forethought or malice. But if a programmer were to instruct the car to make the same move, given conditions it may sense in the future, well, that looks more like premeditated homicide.
2. How do self-driving cars reduce road accidents and fatalities?

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   Now, to be fair, self-driving cars are are predicted to dramatically reduce traffic accidents and fatalities by removing human error from the driving equation.

3. The outcome of self-driving car accidents could be determined months or years in advanced by programmers or ___policy makers____ ?

   01:40
   But accidents can and will still happen, and when they do, their outcomes may be determined months or years in advance by programmers or policy makers.

4. What does the speaker say about the priority of minimizing harm?

   01:40

   But accidents can and will still happen, and when they do, their outcomes may be determined months or years in advance by programmers or policy makers. And they'll have some difficult decisions to make. It's tempting to offer up general decision-making principles, like minimize harm, but even that quickly leads to morally murky decisions.

5. What other examples of novel ethical dilemmas does the speaker offer?

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   Our new technologies are opening up many other novel ethical dilemmas. For instance, if you had to choose between a car that would always save as many lives as possible in an accident, or one that would save you at any cost, which would you buy? What happens if the cars start analyzing and factoring in the passengers of the cars and the particulars of their lives? Could it be the case that a random decision is still better than a predetermined one designed to minimize harm? And who should be making all of these decisions
   anyhow? Programmers? Companies? Governments?

6. Since the start of the lesson has your opinion on self-driving cars changed at all?

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https://www.youtube.com/watch?v=ixIoDYVfKA0