

5DV121
Fundamentals of Artificial Intelligence
Seminar

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1 Self-driving cars

Self-driving cars is becoming increasingly popular throughout the world. It is a combination of technology and artificial intelligence.

1.1 The technology behind self-driving cars

A self-driving car also known as autonomous or “driver-less” car, combine sensors and software to control, navigate, and drive the vehicle. Through the sensors the software of the self-driving car processes the input and plots a path and sends instructions to the vehicle’s “actuators,” which control acceleration, braking, and steering. To help the car to follow the traffic rules and navigate obstacles the software is equipped with a strict set of rules and obstacle avoidance, predictive modelling algorithms etc.

Self-driving vehicles are often described by researchers on a scale of 0-5. Where 0 is a vehicle where all major systems are controlled by humans and 5 is where the car is completely capable of self-driving in every situation.

1.2 Laws

Cars driven by AI creates new problems regarding the law. If a collision or an accident occurs, who is responsible? This is a new problem for all the countries around the world and new laws in the field are being discussed everyday in parliaments. In the UK they are propositioning laws which should be ready as soon as 2021 but that is not the case everywhere. This is a big problem which will lead to a lot of court cases without modern laws which can be applied.

1.3 Challenges for the future

With the new self-driving cars comes a lot of possibilities and also a lot of challenges. These new cars which are equipped with a lot of cameras and a computer will draw more power than ordinary vehicles. Power is already a problem for ordinary vehicles where the industry is heading more towards fossil free fuel and relying more and more on electric motors. Since there still does not exist batteries with great capacity for their size we do still have a problem regarding longevity of one “full tank”. Better cameras and better technology will improve the safeness and functions of the cars which will be welcomed in the future in all possible fields.

1.4 Ethics

One problem with self driving cars is the above stated fact what will happen if anything goes wrong, who is held responsible? Is it the manufacturer or the person who is just sitting in the car? Self driving cars would work better if no humans were in traffic since robots are much easier to predict than humans who are irrational. Since driving is a big freedom for many people, is this something which should be taken from them? Should we instead accept more fatalities in traffic and let people have more freedom? This will be a big problem for the future to tell. Another problem is security. What if hackers could gain control of a self driving car, or multiple. This could cause huge problems and many fatalities.

A good thing is the fact that if there were more self driving cars drunk driving would probably be reduced significantly since people would not control their cars. Another positive thing is that it could help to mobilise people who are unable to drive like elderly or disabled people. Having a self-driving car would be like having your own personal taxi driver which probably would negatively impact public transportation funding or the taxi business leaving many more people without a job. This is a problem in all areas where the "easier" jobs are disappearing and being replaced by machines which ultimately will result in higher unemployment rate.

2 References

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