Ethical challenges of autonomous driving

Differentiation between automated vehicle and autonomous/fully automated vehicles

Automated: Certain, defined courses of action can be managed independently; humans may have to intervene or take over certain tasks completely, since the vehicle cannot do them alone man remains responsible

Autonomous/fully automated: once the vehicle has been started, it does not require any further human assistance and must therefore be able to make its own decisions (this also means that no steering wheel or accelerator pedal is required).

But: When humans relinquish control completely, who takes responsibility?

Solutions to a moral dilemma?

Unlike humans, vehicles do not make spontaneous and arbitrary decisions. With the help of their high computing power and a large number of sensors, autonomously driving cars can detect and react to situations more quickly. Nevertheless, every decision by someone (e.g. the programmer) has to be considered and programmed in advance. Fully automated vehicles in particular are the focus of ethics committees.

From an ethical point of view, every single human life has the same value and is therefore untouchable. Five human lives are not worth one life. In order to still have guidelines, scientists, lawyers and technicians meet in ethics committees. The ethics commission for automated and networked driving in Germany, for example, established 20 rules for this.

You can read some of these rules here:

"In the event of unavoidable accident situations, any qualification based on personal characteristics (age, gender, physical or mental constitution) is strictly prohibited."

"An offsetting of victims is prohibited.
Those involved in creating mobility risks must not sacrifice those who are not involved."

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Protecting people takes precedence over all other considerations of utility.
The aim is to reduce damage to the point of avoiding it altogether."

In spring 2021, the European Commission also developed proposals for new EU rules to promote trust in artificial intelligence. For example, both in autonomous driving and in other high-risk applications where people's lives could be endangered, the data must be selected in such a way that nobody is disadvantaged. In addition, a human must always have the final control and it must be documented exactly how the system develops and what conclusions it draws.

The German car industry tries to avoid this moral dilemma in the event of an accident by programming their cars in such a way that the speed in their own lane is reduced as far as possible **before** an unavoidable accident, in order to avoid the worst possible scenario.

What problems arise?

Question of Responsibility: Who decides about life and death in an accident situation?
Autonomous cars can be programmed to protect the highest possible number of lives in an accident. But is that ethical? Who decides which life is worth less in an accident?

Right to privacy: "Everyone has the right to the protection of personal data concerning them." (Source: Charter of Fundamental Rights of the European Union), by using countless sensors and innovations such as speech recognition and voice control to collect the most diverse data, the car is transformed into a listening device.
Would you agree that your insurance company knows full well that you drive 15 km/h too fast on your way to work and sometimes don't turn on the turn signal?

„Privacy by Design"
With these technical measures, data protection should already be built in during development. Data is encrypted or made anonymous right at the beginning.