

Draft synopsis

IDEA/CONCEPT

The concept and idea for my entry into the software studies lexicon, will be to explore autonomy in driving (self-driving cars), with focus on the change in the role of the human, as well as a shift in accountability of actions.

First and foremost, I would like to put emphasis on the word “explore”. It is not my intention for this entry to be conclusive as such, but rather, I intend for it to be explorative in the sense that it will seek to discuss and debate the field of autonomy in driving. Particularly, the changing of the role of the human being, and how the steps being taken towards fully autonomous cars might degrade the human role in driving, and how this shift then affects the question of accountability of actions.

THE ROLE OF THE HUMAN BEING

I want to raise the question of whether the introduction of autonomy in vehicles changes the perception of the human being as an operator of a system, to a spectator instead. When we think in terms of autonomous technology, this very shift has happened in a number of industries already – namely in production.

With the introduction of robotics in mass production, the role of the human being was degraded to the point of supervision. As such, the superior work rate coupled with better consistency of quality saw the robots take over a lot of the operational aspects of production which was previously taken care of by the human being. Autonomy in cars is, to me, a very natural step forward, in the same lines as that of the production example. With the changing of the human role in driving, our perception of transportation by car could change all together. I want to raise the question of what the introduction of autonomy in vehicles means for the human being’s role as an operator of a system. It is my belief, that operating a system entails some elements of knowledge of how the system in question works. Removing the operational aspect might lead to the technology becoming black box to the average user. This is something I intend to explore.

THE QUESTION OF ACCOUNTABILITY

With autonomy comes a vision of complete road safety. In principle, should all cars be fully autonomous, the removal of the human factor in driving should promise increased road safety with a radical reduction of accidents. According to Waymo, a Google funded self-driving technology company, upwards of 94% of crashes and accidents (in the US) comes as a result of human choice

and error¹. Following these statistics, drinking, breaking the law (in terms of speeding) and general inattention are all problems to blame. These can all be attributed to the driver. The introduction of fully autonomous cars will render the problem of the human factor as non-existing in terms of road safety – add to that the ability (possibility) of autonomous cars to be in constant communication with one another, and the roads should be a safer place without human beings as the operators. But what if not all cars are autonomous? The current situation is semi-autonomous vehicles mixing with regular cars driven by people on the road. In some ways, this increases the requirements for the technology in the self-driving cars, as they should also be able to act upon actions taken by human beings in the environment around them. So, in this current environment, should an accident involving a self-driving car happen, who should then be held accountable?

RANDOMNESS IN SOFTWARE?

This leads me on to another question I would like to raise in relation to crashing autonomous cars, is the question of randomness in software. As of late, particularly two accidents involving autonomous cars has sparked much debate about the security and stability of the software inside the cars. When a person crashes, the circumstances under which it happens, as well as the state in which the driver in question is in, can perhaps be thought of as random. However, should an autonomous vehicle cause the accident, it will be assigned to a flaw in the software. It is worth discussing how the disbelief of randomness in software leads to sharper conclusions in failure from the software. If a human being crashes the car, the fault most likely lies with the person and as such, it can be seen as a single accident of random nature. But when an autonomous car crashes, the fault is in the software - which means, it could be replicated, and happen again. The lack of true randomness in software raises the question of accountability, which is something I should like to explore as well. I should state, that this is a hypothesis of mine, and the above statements should as a result not be looked on as facts, but rather as topics of discussion.

HOW (SOURCES)?

As of this moment, I am only currently in the preliminary stages of my research, and as such, I expect to gain a clearer understanding of which sources to draw upon for the final entry.

The collection "*Autonomous Driving*"² will act as my main source. It contains multiple academic articles on the various different matters of autonomous driving, which seems promising. It entails both articles on the relationship between the human being and the car as a machine (which should prove relevant in discussing the role of the driver), as well as studies of safety in traffic (which could prove itself relevant in discussing the case of accountability).

¹ <https://waymo.com/tech/>

² <https://link.springer.com/book/10.1007/978-3-662-48847-8?page=1#toc>

I also intend to use relevant material from the curriculum of both this course, but also from our aesthetic programming (AP) course, where relevant and indeed possible.

In speaking about the changing roles of the human being in contact with technology, I will be including "*On Sourcery and Source Codes*" by Wendy Hui Kyong Chun in Programmed Visions 2011, drawing on the historical analysis of software, describing how early computers required human operators in the most literal sense of the word in order to work.

In discussing randomness, I intend to use material from AP, and as it is also on the calendar for this course, I intend to include material from there where relevant as well.

NEXT STEPS?

The forthcoming work will focus on extending my research as well as studying the material it has already produced. Close reading for relevancy in the articles from *Autonomous Driving* will be my main area of focus, in order to uncover what is useful, and where I have to look for further information and inspiration. In general, I find the area interesting, and so over the next weeks I intend to engage in more general research on the area as well, such as the technical workings of the self-driving systems, as well as the major players in the field, in order to gain a better understanding of the purposes and intentions behind the technology. I believe that a thorough knowledge will contribute to the work of reflecting on the questions raised above.