

Information sheet for research project “Interaction Cue in Highly Automated Vehicle”

1. Introduction

You have been invited to take part in research project “Interaction Cue in Highly Automated Vehicle”. Participation in this research project is voluntary: you decide if you wish to take part. Before you decide to participate, we kindly request you to read the following information, so you know what the research project is about, what we expect from you and how we will process your personal data. Based on this information, you can use the consent form to indicate if you consent in participating in the research project and consent with the processing of your personal data.

You may of course always ask questions to the research project manager via h.dong@tue.nl or discuss this information with your acquaintances.

2. Objective of the research project

This research project will be led by Haoyu Dong and Yuanzi Wang. The experiment has been designed and is being carried out by Haoyu Dong and Yuanzi Wang, under the supervision of Prof. Dr. Marieke Martens, and Pavlo Bazilinskyy at Eindhoven University of Technology (TU/e).

The automated driving technology has been developing rapidly, which affects personal mobility in our daily lives. However, ultimate implementation of automated vehicles does not only rely on the advancement of technology, but also how human users use them in an appropriate manner. Therefore, in this project we will investigate how the automated vehicles communicate with human users to facilitate proper usability and user experience in normal automated driving situations.

3. What does participation in the research project entail?

We set up an experimental vehicle to provide a context for facilitating your imagination of a driving experience in a conditionally automated vehicle. A conditionally automated vehicle means the vehicle could perform the driving task in limited conditions for which it was designed, but the human driver is expected to respond appropriately to a request to intervene. **While sitting in the experimental vehicle, we would like to ask you to really imagine yourself sitting in a highly automated vehicle and behave in the context accordingly.** The experiment will be conducted on one of the highways near Eindhoven, the Netherlands, and the route is pre-selected. The experimenter and driver have already thoroughly familiarized with the route beforehand.

The general process:

- Motion sickness susceptibility have been assessed and a short questionnaire for demographic information (e.g. gender, age category), driving experience, affinity of technology, propensity to trust etc. After signing the consent form is filled online before the experiment.

- You will sign the consent form before coming to the experiment vehicle. Then, you will be asked to sit in the experimental vehicle in a parking lot and be informed of the setup of the vehicle. Then, you will be given a detailed instruction regarding the tasks.
- The car will travel via the pre-selected route near Eindhoven. The experiment officially starts when the car is near the highway, and you will get a notification from the experimenter sitting on the front passenger seat. The whole journey contains two rounds of the route, in one of which you will experience our designed cue prototype. The total ride will take about 50 minutes, of which 15 minutes will be highway driving.
- You are required to conduct certain non-driving related activities (NDRAs), which is watching a video from a tablet.
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- During the whole experiment, an in-car camera will be used to record your activities for observational analysis.
- After the experiment, the experimenter team will drive you back to the starting point. You will be asked to fill in post-hoc questionnaires and answer some open questions in an interview, both about the general user experience (e.g. workload, user experience with the design concept). The interview will be audio recorded.

In order to carry out the study properly it is important that you follow the study instructions. **But there is no right or wrong, it is more important to simply do what you think you would do in a highly automated vehicle and share your experience with the experimenters.**

It is **mandatory** to inform the experimenter immediately

- if you feel motion sickness or any other discomfort during the on-road study

It is important that you contact the investigator:

- if you no longer want to participate in the study
- if your contact details change

Due to the on-going COVID situation, we ask you to sign a health self-declaration form (Appendix B, and it is also important that you contact the investigator:

- if you have certain complain and cannot participate in the study
- if you tested positive 3 days after your participation

4. Which of your personal data do we collect and process?

Regular personal data

- Contact information (name, email address or phone number)
- Demographic data: age range, gender, driving experience, profession, etc.
- Personal opinions and familiarity with related automated driving technologies, personal opinions on the proposed design concept, personal preferred driving style etc.
- Video recording for observation of your behaviour during the car ride
- Audio recording of the interview

5. Potential risks and inconveniences

- Your participation in this research project could involve potential risk of suffering from motion sickness. In case you feel motion sickness or any other discomfort during the study, it is mandatory to inform the experimenter. The study will be stopped immediately. We also provide you with an emergency button for you for abortion of the study at any time without any reasons and consequences.
- Your participation in this research project could involve on-road hazard in common traffic. The experimenter team will try to minimize the risks: 1) the vehicle being used in this study has a valid vehicle license, 2) the routes is pre-defined 3) the driving experimenter will be well-selected TU/e employee with at least 3 years driving experience, 4) the driving experimenter will be thoroughly familiarized with the selected routes, 5) the on-road experiment will only include daily normal traffic and driving maneuvers, 6) the traffic regulations (e.g. speed limit) will be followed at all times, 7) in case of adverse weather conditions (e.g. fog), the experiment will be postponed.
- You do not need to answer any questions you do not wish to. Your participation is voluntary. This means you may cancel your participation at any moment you choose by communicating this to the researcher. You do not need to explain your reasons for cancelling your participation in the research.

6. Refunds

You will receive €10 allowance per hour and an addition of €2 travel compensation for participants from outside TU/e or Fontys Eindhoven for your participation in this research project.

7. Confidentiality of the data

We will do everything possible to protect your privacy. The research results that will be published will not in any way include confidential information or personal data through which anyone can recognize you, unless you explicitly give permission for publishing a photo in a publication to visualize the setting of the experiment (with facial blur to protect privacy).

The personal data that were collected through channels like audio and video recordings, questionnaires, and other documents within the framework of this research, are stored on a secured storage solutions offered by the IMS service of TU/e.

The processed research data will be retained for a period of 10 years for good academic practice. At the latest after expiration of this time period, the data will either be deleted or anonymized so they can no longer be traced to an individual person.

The research data will if necessary (e.g. for a check of academic integrity) and only in anonymized form, be put at the disposal of persons outside the research group.

Finally, this research project has been assessed and approved by the ethical commission of Eindhoven University of Technology.

8. Voluntariness

Participation in this research project is entirely voluntary. As participant, you may end your cooperation with the research project at any moment, or refuse permission for your data to be used for the research, without providing any reason. Cancelling your participation will have no negative consequences for you or for any refund you may already have received.

If you decide to cancel your cooperation while the research project is ongoing, data you already provided up to your cancellation may be used for the research.

Do you wish to cancel your participation in the research project, or do you have any questions and/or complaints? Contact the research project manager.

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This research is performed from Eindhoven University of Technology, which is controller in the sense of the General Data Protection Regulation (GDPR). If you have specific questions concerning the handling of personal data you may direct these to the data protection officer of TU/e by sending a mail to dataprotectionofficer@tue.nl. Furthermore, you have the right to file a complaint with the Data Protection Authority (in Dutch: *Autoriteit Persoonsgegevens*).

Finally, you have the right to submit a request for access, rectification, erasure or adjustment of your data. For further information go to <https://www.tue.nl/storage/privacy/>. You can submit your request via privacy@tue.nl.

Appendix A: Consent form for participation by an adult

Through this consent form I recognize the following:

1. I am sufficiently informed about the research through a separate information sheet. I have read the information sheet and have subsequently had the opportunity to ask questions. These questions have been answered satisfactorily.
2. I take part in this research project voluntarily. I do not take part under any kind of explicit or implicit duress. It is clear to me that I can cancel my participation at any moment without having to provide any reason. I do not have to answer a question against my wish.

Beside the above, you can below give your specific permission for various parts of the research. You can give or withhold your permission for each part.

1. I give permission to process the personal data that are collected from me during the research in the way described in the attached information sheet. (read more under section 4).

YES ☐ NO ☐

2. I give permission for making audio recordings during the interview and to compile a transcript of my answers. (read more under section 4).

YES ☐ NO ☐

3. I give permission for making video recordings and use eye tracking glasses during the car ride and to analyze those in order for behavioral analysis (read more under section 4).

YES ☐ NO ☐

4. I give permission for my photos to be used in the research publications, without my name being mentioned. (read more under section 7).

YES ☐ NO ☐

5. I give permission to store the research data collected from me for use in future research in the field of interaction design for highly automated vehicle with due regard for recognized ethical standards for scientific research, and for education purposes. (read more under section 7).

YES ☐ NO ☐

6. I give permission to be contacted again after this study for a follow-up study.

YES ☐ NO ☐

Name of participant:

Name of researcher:

Signature:

Date:

Signature:

Date:

Appendix B: Health Self-Declaration for Participants

1. Have you (or the person for whom you are completing this form) been diagnosed as currently having a lung infection or coronavirus infection (COVID-19), or is there suspicion that you might have either of these?

YES ☐ NO ☐

2. Should you (or the person for whom you are completing this form) currently be in quarantine because you were in contact with someone infected with coronavirus, whether a close contact or someone you were informed about through the CoronaMelder app, and you are not fully vaccinated?

YES ☐ NO ☐

3. Have you (or the person for whom you are completing this form) experienced any of the following symptoms in the past 24 hours? In case you have tested negative for COVID-19 after the development of the symptoms, this question can be answered with 'no'

Cold symptoms (such as congestion, runny nose, sneezing or sore throat) YES ☐ NO ☐

Cough YES ☐ NO ☐

Shortness of breath YES ☐ NO ☐

Raised temperature or fever YES ☐ NO ☐

Sudden loss of smell and/or taste (without congestion) YES ☐ NO ☐

Name of participant:

Signature:

Date: